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ELLIS - PAHSIMEROI

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GRAZING

ENVIRONMENTAL

IMPACT STATEMENT

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NOTICE TO READER

PLEASE RETAIN YOUR COPY OF THIS DRAFT BECAUSE THE FINAL EIS WILL INCLUDE ONLY CHANGES, CORRECTIONS AND PUBLIC COMMENTS RELATING TO THE DRAFT.

IN REPLY REFER TO

1792

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Salmon District Office
P.O. Box 430
Salmon, Idaho 83467

February 4, 1982

You recently received a copy of the Draft Ellis-Pahsimeroi Grazing EIS. Due to delays beyond our control, it has been necessary to change a few dates. These changes are:

ACTION	OLD DATE	NEW DATE
Receipt of hearings registration	February 26, 1982	March 5, 1982
Hearing Date	March 2, 1982	March 9, 1982
End of Comment period	March 22, 1982	March 29, 1982

Thank you for your interest.

Jerry Wilfong
EIS Team Leader

IN REPLY REFER TO

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Salmon District
Box 430
Salmon, Idaho 83467

We have forwarded for your review and comment the draft environmental impact statement (EIS) on proposed range management in the Ellis - Pahsimeroi area of Central Idaho. This draft has been prepared by a team of resource specialists from the Bureau of Land Management.

The team has identified and analyzed in this draft statement those impacts associated with the implementation of the Bureau's proposed range management program for the area. Considered in the document are the impacts associated with implementing grazing systems in 33 allotments, including the necessary range improvements. The document also offers five alternatives with an analysis of the impacts associated with the implementation of each.

A public hearing is scheduled at 7:00 p.m., Tuesday, March 2, 1982, to receive oral and written testimony on the document. This hearing will be held in the basement of the Salmon Public Library, Salmon. We have attached further information on the public hearing including a registration card should you choose to testify. In order to have a list of participants available in the Salmon District Office one day before the hearing, we must have the registration card in this office at the close of business February 26, 1982. If you have any questions about the hearing, please call Jerry Wilfong, EIS team leader at (208) 756-2201.

Further written comments are invited. To be considered in the preparation of the final EIS, they must be received on or before March 22, 1982. Oral and written comments will receive equal consideration in preparing the final statement. Written comments should be submitted to:

Jerry Wilfong, EIS Team Leader
Bureau of Land Management
Box 430
Salmon, Idaho 83467

We look forward to your comments on this major effort. We thank you for your past and future help in our efforts to manage public lands in the best interests of all concerned.

Sincerely,

Jerry W Goodman

Jerry Goodman
Acting District Manager

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DEPARTMENT OF THE INTERIOR

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PROPOSED RANGE MANAGEMENT PROGRAM

FOR THE

ELLIS - PAHSIMEROI AREA

PREPARED BY

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

Guy E. Baier

Guy E. Baier, Acting BLM STATE DIRECTOR

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ELLIS - PAHSIMEROI GRAZING ENVIRONMENTAL IMPACT STATEMENT

(x) Draft ( ) Final Environmental Impact Statement

1. Type of Action: (x) Administration ( ) Legislative

2. Responsible Agencies:
   a. Lead Agency: Department of the Interior, Bureau of Land Management
   b. Cooperating Agencies: None

3. Abstract: The Ellis - Pahsimeroi Grazing Environmental Impact Statement analyzes the effects of livestock grazing on 380,458 acres of public land in central Idaho. Six grazing management alternatives are presented for consideration and are analyzed in terms of their projected economic, social and environmental effects. Each alternative analyzes a different level of allocating the vegetative resource among competing uses.

This document will be used to determine the proper level of livestock grazing on the public lands, using the multiple use sustained-yield concept. Its contents exemplify the conflicting demands being placed on public lands throughout the West and the fact that concessions are necessary to achieve parity between resource needs and resource use. The range land management program selected for the Ellis-Pahsimeroi area will be based upon the analysis presented in this document.

4. Comments Must Be Received By: March 22, 1982

5. Send Comments To - And For Further Information Contact:

Jerry Wilfong - Team Leader
Bureau of Land Management
Box 430
Salmon, Idaho 83467

Telephone (208) 756-2201

Bureau of Land Management
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225

Public Review of the Statement

There will be copies of this draft environmental impact statement available for review at the following places.

Challis City Library
Challis, ID 83226

Custer County Agricultural Agent
Box 160
Challis, ID 83226

Salmon Public Library
Box 897
Salmon, ID 83467

Lemhi County Agricultural Agent
Box A
Salmon, ID 83467

Soil Conservation Service
Box 550
Salmon, ID 83467

BLM Offices

State Office
550 W. Fort Street
Boise, ID 83724

Coeur d'Alene District
Box 1889
Coeur d'Alene, ID 83814

Shoshone District
Box 2B
Shoshone, ID 83352

Boise District
230 Collins Road
Boise, ID 83702

Burley District
200 South Oakley Highway
Burley, ID 83318

Idaho Falls District
940 Lincoln Road
Idaho Falls, ID 83401

Salmon District
Box 430
Salmon, ID 83467

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GENERAL INFORMATION REGARDING THE PUBLIC HEARING ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT ON THE PROPOSED RANGE MANAGEMENT IN THE ELLIS - PAHSIMEROI AREA, IDAHO.

Public Hearing Schedule

7:00 p.m., Tuesday, March 2, 1982
Salmon Public Library, basement
Salmon, Idaho

Authority

The hearing is being held according to the objectives to the National Environmental Policy Act (PL 91-190; 83 Stat. 852, 853).

Purpose

The hearing is to receive comments (testimony) on the analysis of the Proposed Action and the five alternatives addressed in the draft environmental impact statement (EIS). Testimony presented at this hearing will be used in the preparation of the final EIS.

Composition of the Hearing Panel

The public hearing proceedings will be conducted by a hearing leader. The leader will be accompanied by a panel composed of the Ellis - Pahsimeroi EIS team leader and representatives of the Bureau of Land Management staff involved in preparation of the draft EIS. The hearing leader or a panel member recognized by the hearing leader may ask questions of the participant to clarify points in the testimony.

Oral Statements

Persons wishing to give testimony will be limited to 10 minutes, with written submissions invited at the hearing.

Before giving testimony at the public hearing, participants are requested to complete the attached hearing registration form. Registration forms may also be obtained by contacting Jerry Wilfong, Bureau of Land Management, Box 430, Salmon, Idaho, 83467, (208) 756-2201. Registration forms must be returned to this address by 4:30 p.m., February 26, 1982. Participants may register at the registration desk before the hearing. Time preferences for presentation of oral

statements will be honored whenever possible. A tentative listing of speakers, in the order they will be called, will be available March 2, 1982, at the Bureau of Land Management's Salmon District Office, Highway 93 South and at the registration desk.

After the last participant has been heard, the hearing leader will consider the request of any other person present and wishing to testify. Only one participant will be allowed to represent the viewpoints of a single organization. However, any participant will be permitted to give germane testimony if it is offered as the views of opinion of private citizen.

General

Participants must direct their testimony to the contents of the document and to specific aspects of the proposed range management or alternatives.

Written Statements

Written statements from those unable to attend the hearing should be addressed to:

Jerry Wilfong, EIS Team Leader
Bureau of Land Management
Box 430
Salmon, Idaho 83467

Written Statements will be accepted on or before March 22, 1982.

PUBLIC HEARING REGISTRATION FORM

For public hearing on the draft environmental impact statement of the proposed range management in the Ellis - Pahsimeroi area of Central Idaho.

(Please Print)

To: Jerry Wilfong, EIS Team Leader, Bureau of Land Management
Box 430, Salmon, Idaho 83467

From: Name _____

Street Address _____

City, State _____ Zip Code _____

Representing _____

I wish to express my view at the public hearing. Yes _____ No _____

I intend to submit written documentation. Yes _____ No _____

_____
Signature

Verbal testimony will be limited to 10 minutes; written testimony will be accepted at the above address by 4:30 p.m., March 22, 1982. Registration forms should be submitted to the Salmon District Office by 4:30 p.m., February 26, 1982.

This Ellis - Pahsimeroi Grazing Environmental Impact Statement (EIS) analyzes the effects of livestock grazing on 380,458 acres of public land administered by the Bureau of Land Management, Salmon District, in central Idaho.

The EIS is being prepared between the recommendation and decision phases of the Salmon District's land-use planning process. That process has included detailed resource inventories, individual resource development plans, conflict analysis and multiple use recommendations. This EIS serves as an analytic instrument which will be used in deciding a course of action affecting the range land. The decision evolving from this study will determine final vegetation allocations among livestock, wildlife and non-consumptive uses such as watershed.

Issues and Controversy

The general public, special interest groups, other federal agencies and state agencies were consulted at regular intervals throughout the planning and EIS scoping process. In general, contributions from individuals and agencies were low level, except for ranching groups which expressed the most interest and made the most contributions of any of the groups. As a result of this consultation, the principal conflict related to livestock grazing surfaced as economic effects on ranchers versus allocation of forage.

The identification of these issues enabled the formulation of alternatives to be analyzed in the EIS. The basic difference between the Proposed Action and the various Alternatives lies in the number of AUMs allocated to livestock and wildlife and the extent and time frame of the range improvement program.

The major area of controversy centers around the initial adjustments in livestock AUMs to meet the determined available forage production for livestock.

Consequences of Proposed Action and Alternatives

The Proposed Action calls for an initial reduction of 4.6 percent from the current active grazing preference (from 27,979 AUMs to 26,689 AUMs). This would result in decreases in livestock allocations on 12 allotments, increases on 3 allotments, and an unchanged situation on 18 allotments. Wildlife would be allocated 2,751 AUMs and non-consumptive uses would receive 193,609 AUMs.

The Proposed Action also plans for 85 miles of pipeline, 89 troughs, 30 reservoirs, 69 miles of fence, 10,820 acres of new vegetation manipulation, 2,460 acres of vegetation manipulation maintenance, and implementation of grazing systems on 25 of the 33 allotments.

Within 20 years, a 22 percent increase in forage production would allow an increase in the livestock allocation to reach 35,016 AUMs and an average increase in big game wildlife populations of 42 percent over the current situation.

There are currently no allotments where watershed conditions are deteriorating. However, reductions in livestock grazing would cause improvement on 43% of the area and maintenance of condition on 57 percent of the area. In addition, aquatic wildlife and recreation would benefit, cultural resources would receive more pressure, and visual resources would not be affected significantly. Although negatively impacted initially, at the end of 20 years the ecomonic and social conditions would have improved over the current situation.

Other management options are available including Alternative 1 (No Change), Alternative 2 (Prolonged Change), Alternative 3 (No Livestock Grazing), Alternative 4 (Maximizing Range Improvement Benefits) and Alternative 5 (Reduced Livestock).

Alternative 1 would result in a continuance of the present range program at the present rate. Livestock forage allocation would remain at 27,979 AUMs. The implementation of new grazing systems and range improvement projects would result in an expected 3 percent increase in forage production over the long-term. This would result in 28,818 AUMs available for livestock and an average increase in big game populations of 21 percent over the current number. Watershed conditions would improve on 42 percent of the area with 52 percent maintaining its present condition. Aquatic wildlife and recreation would accrue benefits; however, not to the extent of the Proposed Action. Cultural resources would continue to receive pressures from grazing and visual resources would not be significantly impacted. No change would occur to the economic or social conditions in the area.

Alternative 2 involves basically the same programs as the Proposed Action, only over a 20 year time frame of implementation instead of the 5 year time frame of the Proposed Action. Livestock allocations would not be changed from the current number. However, a 14 percent increase in forage production would allow for a corresponding increase in livestock AUMs and the same number of big game wildlife populations as Alternative 1 (No Change). Watershed condition, cultural resources, range improvements, visual resources, and recreation, would be affected the same as in the Proposed Action. Big game wildlife populations and aquatic wildlife would incur benefits the same as under the No Change Alternative. No change would occur initially in the economic conditions of the rancher groups affected. However, over the long-term, rancher income would increase resulting in the same net gain as the 5 year Proposed Action. Since reductions would not occur but economic long-term gains would be made, social well being would be better than the Proposed Action.

Alternative 3, although not a realistic alternative, is a requirement of NEPA. Without livestock grazing, a long-term 45-90 percent increase in production would result. Wildlife populations would respond by increasing an average of 43 percent and watershed conditions would improve on 80 percent of the area with no change on 20 percent of the area. Under this alternative as compared to other alternatives, aquatic wildlife would have the greatest benefits. The effects of livestock trampling on cultural resources would cease along with any related visual impacts. Recreation opportunities would be greatest under this alternative. Economic and social conditions would be drastically affected.

Alternative 4 is designed to concentrate vegetative manipulations and range improvements where the potential economic return is the greatest. Livestock and wildlife would receive the same allocation as in the Proposed Action initially. Expected vegetative production increase would be 3 percent resulting in the same wildlife population increases as the Proposed Action. Range improvements listed in the Proposed Action would occur only on the 11 allotments placed in the intensive management category. Improvements on the remaining allotments would occur over a 20 year time frame and to approximately the same extent as Alternative 1. Watershed conditions would improve on 33 percent of the area and would be maintained on 67 percent of the area. Cultural resurces would incur a 17 percent increase in trampling effects. Visual impacts would not be significantly affected. Recreation would be affected the same as the Proposed Action. Aquatic wildlife would benefit the same amount as Alternative 1. Initial economic and social impacts would be similar to the Proposed Action; long-term economic status and social well being would be improved above Alternative 1 and 5 but would be less than the remaining alternatives.

Alternative 5 reduces the initial livestock allocation to 22,778 AUMs (a 19 percent reduction from current active preference). Wildlife would be allocated 2,751 AUMs. After 20 years the expected production increase would be 26 percent. The same number of range improvements would be implemented as in the Proposed Action. Big game wildlife populations and aquatic wildlife would be affected the same as in the Proposed Action. Watershed condition would improve on 43 percent of the area with maintenance of present conditions on 57 percent of the area. Cultural resources, visual resources and recreation would be affected the same as in the Proposed Action. Economic status and social well being would, initially, be negatively affected the most of all the alternatives except Alternative 3. Long-term conditions would increase but not to the extent of the other alternatives (with the exception of Alternative 1 and 3).

As can be seen from the above discussion, the long-term effects of many of the Alternatives are not widely dissimilar (with the exception of Alternative 3). This is a reflection of the low magnitude of problems in the EIS area. The final course of action will mainly affect the initial and long-term economic impact on the ranching groups and the time frame within which improvement in the range resource will occur.

CHAPTER I

PURPOSE AND NEED

PURPOSE AND NEED

This environmental impact statement (EIS) is being prepared in compliance with the National Environmental Policy Act and to help decision makers and the public assess the environmental, social, and economic impacts of implementing an intensive range management program. This range program involves 380,458 acres of public land administered by the Salmon District of the Bureau of Land Management (BLM). The EIS area is located in central Idaho and covers parts of Lemhi and Custer counties (Figure 1-1).

This document analyzes forage allocation and range improvements that would be used to design an improved grazing management program for the area.

In 1979 a resource inventory collected data which was used to formulate the land use plan for the management of the Ellis-Pahsimeroi Resource Area. Inventories also identified problems caused by season long livestock use, poor livestock distribution, or overstocking. In analyzing this plan, various resource conflicts were identified. These conflicts will be addressed in this EIS.

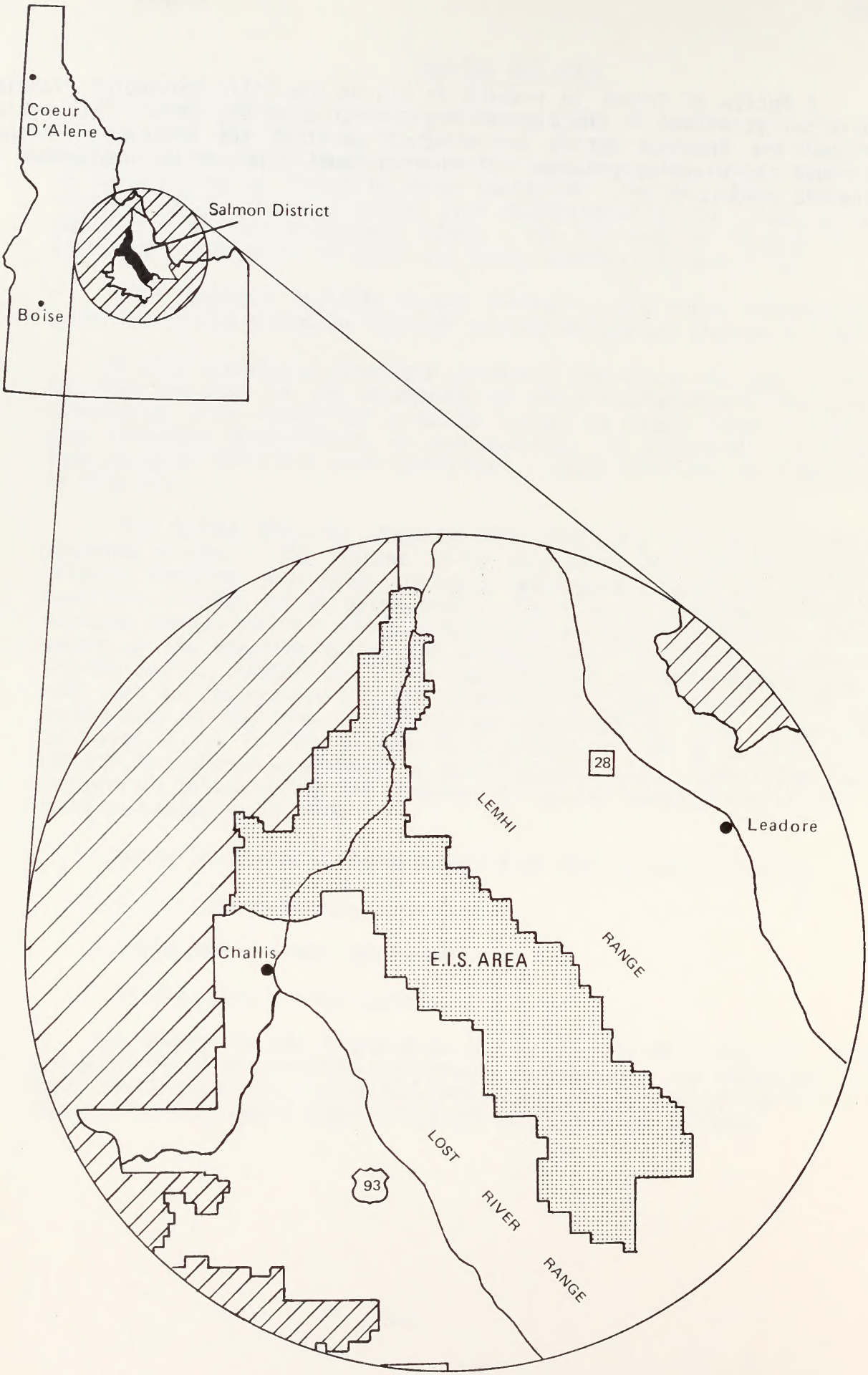
The Salmon District prepared this draft EIS as part of the Bureau planning process. The process up to this point has involved pre-planning efforts, resource inventories, resource development potentials, and potential conflicts arising out of development. The district formulated multiple-use resource recommendations which have played an important role in the development of the Proposed Action and Alternatives. A scoping process involving the public, federal and state agencies, and special interest groups has been used to incorporate outside viewpoints in issue identification and the development of the Proposed Action and Alternatives. The Salmon District held open houses in 1981 on June 24 at Salmon and June 25 at Challis, giving the public a chance to comment on the Proposed Action. Input from the scoping process helped refine the Proposed Action and identify significant issues to be addressed in the EIS.

Issues identified as being significant include the following:

- Allocation of forage;
- Implementing range improvements;
- Implementing grazing systems.

The purpose of the Proposed Action is to provide forage for livestock and wildlife while providing protection, maintenance, and improvement of the basic resources (soil, vegetation, and water) as required by the Taylor Grazing Act and the Federal Land Policy and Management Act (FLPMA).

A Notice of Intent to prepare an EIS on the Ellis-Pahsimeroi Planning Unit was published in the Federal Register on June 12, 1981. This notice listed the Proposed Action and Alternatives that the District developed through the planning process. It invited additional public involvement in the EIS process.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CHAPTER II

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action (Preferred Alternative)

Introduction

The Bureau of Land Management (BLM) is proposing to implement an intensive range management program on 380,458 acres of public land. The program is designed to meet the multiple-use objectives developed through the Bureau's planning process.

The jurisdiction of lands within the Ellis-Pahsimeroi area is summarized in Table 2-1. See Map 2-1 for land status.

Table 2-1

Acreage Summary for the Ellis-Pahsimeroi EIS Area

Salmon District Public Lands	Other (1) Public Lands	Total Public Lands	State	Private	Total
378,947	1,511	380,458 (81%)	23,397 (5%)	63,105 (14%)	466,960

(1) Other Public lands include areas administrated by Idaho Falls BLM and Forest Service.

The Proposed Action is the Salmon District's preferred alternative.

The Proposed Action describes the allocation of vegetation between consumptive and nonconsumptive uses and the management of livestock grazing on public lands. This proposal was developed through the planning process which identified resource objectives and recommendations. Objectives and recommendations were often conflicting and had to be modified to develop the most feasible multiple-use plan (Appendix A).

(Note to reader: The numbers in the enclosed tables may appear to be too exact, but for tracing purposes they are necessary. Rounded numbers are very hard to reproduce. Most of the reference material for this document is contained in the Ellis-Pahsimeroi Unit Resource Analysis (URA), copies of which are located in the Salmon District Office.)

Objectives

1. Improve ecological condition throughout the EIS area from the present condition classes of 18% poor; 35% fair; 35% good; 2% excellent; 1% treated; 5% woodland and 4% rock and talus to 10% poor; 29% fair; 45% good; 3% excellent; and 4% treated within 20 years. The woodland, rock, and talus percentages would not change.

2. Increase the livestock forage allocation from the present 26,689 AUMS to 35,016 AUMs within 20 years.

3. Provide forage for wildlife. (Wildlife AUMs are shown as converted to livestock AUMs.) Table 2-2 depicts wildlife species 1980 estimated numbers, desired numbers (1985), AUMs allocated on the suitable and potentially suitable range, and total wildlife allocation (on suitable, potentially suitable and unsuitable range) by 1985. Table 2-3 depicts wildlife allocation totals by allotment. Appendix B explains forage allocation methodology.

Vegetation would be allocated by allotment for wildlife. The difference between the total AUMs allocated (column 5, Table 2-2) and the AUMs allocated from suitable and potentially suitable range (column 4, Table 2-2) are allocated to wildlife on range unsuitable for livestock use. Population management levels were determined from information gained from public input, including the Idaho Department of Fish and Game (IDF&G), during the land use planning process.

Table 2-2

Wildlife Numbers (1) and Forage Needs

Species	Present Numbers (Estimate)	Proposed Numbers	Proposed Allocation (Suitable and Potentially Suitable)	Proposed Allocation AUMs (Total)
Deer	3,530	4,002	935	1,443
Antelope	940	1,194	162	162
Elk	380	426	184	610
Bighorn Sheep	220	349	298	536
Total			1,579	2,751

(1) Numbers obtained from Idaho Fish and Game

4. Maintain and enhance sage grouse habitat.

5. Improve watershed conditions, water quality, and fisheries habitat by upgrading vegetation conditions, increasing vegetation cover, and protecting riparian zones.

Vegetation Allocation

Vegetation for consumptive use would be allocated to livestock and wildlife. Unallocated vegetation is available for general watershed protection, aesthetics, wildlife cover, and other nonconsumptive uses. Table 2-4 summarizes the proposed vegetation allocation and also shows the five year

Table 2-3

Wildlife Allocation by Allotment (AUM's)

	Allotment Number and Name	Suitable/Potentially Suitable	Unsuitable	Total
4401	Camp Creek	15	27	42
4402	Second Creek	17	17	34
4404	Lime Creek	17	17	34
4405	Iron Creek	62	81	143
4406	Poison Creek	18	34	52
4407	Cabin Creek	52	91	143
4408	Findley Basin	15	-	15
4409	Allison Creek	37	129	166
4410	Hat Creek*	153	75	228
4411	Morgan Creek*	384	151	535
4412	Lawson Creek	39	25	64
4413	Little Morgan Creek	27	6	33
4414	Highway	-	-	45
4501	Trail Creek	20	13	33
4502	Spud Creek	32	9	41
4503	Falls Creek	12	1	13
4504	Hamilton Seeding	4	0	4
4505	Mahogany Creek	14	16	30
4506	Patterson Creek	2	2	4
4507	Grouse Creek	76	32	108
4508	Meadow Creek	30	7	37
4509	County Line	15	0	15
4510	Mill Creek	59	14	73
4511	Big Creek	40	34	74
4512	Lower Goldburg	-	-	-
4513	Bear Creek	9	16	25
4514	Pines-Elkhorn	129	157	286
4515	Goldburg-Upper Pahsimeroi	63	19	82
4516	Donkey Hills	36	96	132
4518	Rock Creek	57	-	57
4519	Burnt Creek	48	11	59
4520	Dry Creek	38	-	38
4521	Summit Creek	52	63	115
	Unlicensed	7	29	36
	Total	1,579	1,172	2,751

* Includes allocation in Bighorn Sheep pasture

Table 2-4

Forage Allocation (AUMs) and 5-Year Average License Use

Allotment	Total Preference	Proposed Livestock Use	5-Year Average License Use
Camp Creek	201	117	201
Second Creek	152	105	152
Lime Creek	73	112	73
Iron Creek	1,202	795	1,202
Poison Creek	507	367	474
Cabin Creek	1,045	1,045	1,045
Findley Basin	66	44	26
Allison Creek	655	403	533
Hat Creek	1,654	1,366	1,224
Morgan Creek	2,279	2,710	2,215
Lawson Creek	1,394	1,394	1,369
Little Morgan Creek	350	350	346
Highway	34	75	34
Cronks Wildlife	0	0	-
Morgan Wildlife	0	0	-
Trail Creek	277	277	284
Spud Creek	227	227	227
Falls Creek	545	545	543
Hamilton Seeding	70	60	70
Mahogany Creek	254*	59	118
Patterson Creek	120	120	120
Grouse Creek	2,218	2,218	2,181
Meadow Creek	240	240	240
County Line	680	496	679
Mill Creek	155	155	148
Big Creek	396	350	396
Lower Goldburg	196	196	196
Bear Creek	1,301	1,301	1,303
Pines-Elkhorn	1,840	1,840	1,770
Goldburg-Upper Pahsimeroi	3,583	3,583	3,552
Donkey Hills	1,328	1,328	1,328
Rock Creek	162	162	164
Burnt Creek	858	650	858
Dry Creek	2,024	2,024	1,916
Summit Creek	2,097*	1,975	1,538
Unlicensed	0	0	-
FS administered	-	-	-
IF administered	-	-	-
	28,183	26,689	26,525

*Active preference for Mahogany Creek is 172 and Summit Creek is 1975. For all other allotments, active preference is total preference. Active Preference totals 27, 979 AUMs.

average license use by allotment. Pounds of available livestock forage can be calculated by multiplying AUMs times 800. Appendix B (Data Analysis) describes forage allocation methodology. When a reduction is proposed, the difference between total preference and the proposed use would be placed in suspension.

The active grazing preference would be a reduction of 4.6 percent from 27,979 AUMs to 26,689 AUMs. A summary of the results of the forage allocation is listed in Table 2-5.

Table 2-5

Forage Allocation Summary Change from Grazing Preference

	Number of Allotments	Change in AUMs	Range of Adjustment Percent
Proposed Decreases	12	1,801	10% to 71%
Unchanged	18	0	0
Proposed Increases	3	511	19% to 118%

On all allotments, vegetation allocation is based on the biological limits of forage species. Utilizations of current years' production varies by vegetation type and season of use but normally falls between 30 to 50 percent on key use areas for seasonal and deferred systems and between 65 to 85 percent for rest-rotation systems (Eckert, 1973-76 and Sandy Draft ES 1978). Specific utilization levels are described in Appendix B. Range suitability criteria was applied on a case-by-case basis. Suitability criteria is explained in Appendix C.

The allocation of AUMs potentially available in the long-term are broken down specifically for the purpose of analysis only. As additional forage becomes available in the future, it will be allocated on a basis that will consider all consumptive uses.

Livestock Grazing Management

Livestock select certain plant species and areas when grazing on rangelands. The most palatable plants and the most accessible areas are grazed first and heaviest. Plants grazed heavily one year are usually heavily grazed the following year, which leads to their gradual decline. This is especially true for palatable plants in the preferred areas. When forage production of the most desirable plants falls below the needs of the animal, the animals will start grazing the less desirable species and/or areas. This leads to an ever enlarging area of range deterioration under unmanaged continuous grazing (Stoddart and Smith, 1955; Hormay, 1970).

The effects of selective grazing of preferred plants can be reduced by the use of grazing systems (Anderson, 1967). A grazing system would be tailored to the needs of each allotment; the number of pastures, the amount and timing of grazing and resting, and degree of use are based on key forage plant physiological needs, existing range condition, and potential for improvement. There are 12 allotments (212,126 acres) proposed for rest rotation, 13 allotments (101,161 acres) for deferred rotation, and 8 allotments (59,019 acres) for seasonal grazing. The location of the proposed grazing systems are shown on map 2-2. Table 2-6 depicts the number of types of proposed grazing systems and acreage of each allotment. The grazing systems identified are what is recommended at this point. If during the development of allotment management plans (AMPs) it is found that a different type of system is better suited for that allotment, the new system would be used after an environmental analysis is completed.

Seasons of use, range improvements, and several variables were considered in selecting the grazing systems. Some of the more important considerations included the following: (1) the present condition of the vegetation and soil, (2) the location of existing fences, (3) the location of existing and potential water sources, and (4) the history of use and livestock-operator needs.

Rest rotation grazing would be applied to 12 allotments. This system avoids grazing by livestock at suitable intervals as dictated by the growth requirements of key forage plants. At least one pasture of the allotment is not grazed each year in the cycle. It is designed to restore plant vigor lost through grazing. Normally three or more pastures are required for a rest rotation system. The system allows the desirable forage species to recover vigor, produce seed, and establish seedlings.

Deferred grazing would be applied to 13 allotments. This system delays grazing each year on a portion of range until a specific plant growth stage is reached. The entire range unit is used at some time during the grazing season. Two or more pastures are necessary to establish the deferred grazing system. One pasture is deferred each year until after seeds of the key forage plants are mature. This system is designed to allow sufficient spring growth, either before or after grazing, to maintain plant vigor, and establish seedlings.

Seasonal grazing is proposed on eight allotments. Under this system, grazing occurs on the same area and during the same period each year. Normally, use is made during early spring or after seed maturity of key species during the fall.

Table 2-6
Grazing Systems and Acreage by Allotment

Allotment	Acreage	Existing Grazing System	Proposed Grazing System
Camp Creek	3,141	Seasonal	Deferred
Second Creek	2,464	Seasonal	Seasonal
Lime Creek	2,380	Seasonal	Seasonal
Iron Creek	10,869	Seasonal	Rest Rotation
Poison Creek	4,740	Seasonal	Deferred
Cabin Creek	15,668	Rest Rotation	Rest Rotation
Findley Basin	597	Seasonal	Seasonal
Allison Creek	11,587	Seasonal	Seasonal
Hat Creek	19,214	Seasonal	Rest Rotation
Morgan Creek	47,470	Rest Rotation	Rest Rotation
Lawson Creek	23,358	Seasonal	Deferred
Little Morgan Creek	5,816	Seasonal	Deferred
Highway	1,389	Seasonal	Seasonal
Cronks Canyon Wildlife	1,511	- - - -	- - - - - -
Morgan Creek Wildlife	3,642	- - - -	- - - - - -
Trail Creek	5,327	Seasonal	Rest Rotation
Spud Creek	5,662	Seasonal	Deferred
Falls Creek	13,485	Seasonal	Deferred
Hamilton Seeding	321	Deferred	Deferred
Mahogany Creek	1,317	Seasonal	Deferred
Patterson Creek	1,730	Seasonal	Seasonal
Grouse Creek	35,564	Seasonal	Seasonal
Meadow Creek	2,809	Seasonal	Rest Rotation
County Line	9,751	Seasonal	Rest Rotation
Mill Creek	3,308	Seasonal	Seasonal
Big Creek	3,752	Seasonal	Rest Rotation
Lower Goldburg	4,960	Seasonal	Deferred
Bear Creek	11,111	Seasonal	Rest Rotation
Pines-Elkhorn	19,787	Seasonal	Rest Rotation
Goldburg-Upper Pahsimeroi	45,143	Seasonal	Rest Rotation
Donkey Hills	17,442	Seasonal	Deferred
Rock Creek	1,470	Seasonal	Deferred
Burnt Creek	4,884	Seasonal	Deferred
Dry Creek	14,565	Seasonal	Deferred
Summit Creek	21,225	Seasonal	Rest Rotation
Unlicensed	1,488	- - - -	- - - - - -
Allotment Total	372,306*		
Grand Total	378,947* *		

*Difference between Allotment Total and Grand Total is due to acreage in the two wildlife areas and one unlicensed area.

**Difference between Grand total and EIS total acreage of public land is due to acreages in areas administered by Idaho Falls District and Forest Service.

Requests for conversion in kind of livestock (i.e. sheep to cattle or vice versa) and season of use, made after completion of this EIS, would be considered on a case-by-case basis after completing an environmental assessment.

Range Improvements and Land Treatments

The proposed range improvements include an estimated 69 miles of fence, 85 miles of pipeline, 30 reservoirs, and 89 water troughs. The potential exists for approximately 10,820 acres of vegetative manipulation and approximately 2,460 acres of vegetative manipulation maintenance. Natural barriers or other land features could limit the total acres treated. The proposed developments are depicted on Table 2-7 by allotment. Environmental analyses (EAs) will be prepared for individual projects when site specific details are known.

Project Development and Design Criteria

Reservoir Development

Dams would be constructed to impound spring runoff water for livestock and wildlife. Water storage capacity would range from one-half to one acre-foot. Fill material would come from the impoundment area, or if needed, from nearby sites. Borrow areas would be rehabilitated as needed. If necessary, the reservoir storage area would be sealed to prevent seepage. Specific reservoir sites would be analyzed before selection.

Pipeline Development

Pipelines would be installed to carry water from existing and new springs or wells to areas short of water.

Construction would consist of burying a 1.25 to 2-inch plastic pipe about 20 inches below the surface. Pipelines are installed in three ways. In the method involving buried pipe, on deep soils, a ripper tooth with a pipe laying attachment is pulled to lay the pipe and cover it with soil in one pass. The trench opening would average six inches across. The soil is leveled by attaching a short length of chain behind the pipe layer. The second method is to lay pipe on the surface of the ground when soil depth is limiting. The third method is to dig a trench using a grader or dozer, lay the pipe, then go back over and cover the pipe in the trench.

Water would be provided about every mile along the pipeline for livestock and wildlife. During design and construction the method with the least environmental impacts would be chosen.

To provide for wildlife that become dependent upon the new sources, pipelines would remain charged with water from June 15 to October 1. Pipelines would be drained in the fall to prevent freezing. The BLM would coordinate with ranchers, State of Idaho Water Resources Board, and the Idaho Department of Fish and Game (IDF&G) to provide this water.

Table 2-7

Proposed Range Improvements

Allotment	Pipelines Miles	Troughs No.	Reservoirs No.	Fences Miles	Vegetation Manipulation Acres
Camp Creek	1	3			
Second Creek		2			
Lime Creek	.5	1			
Iron Creek	1.5	5		5	1,000
Poison Creek	1.5	3		2	
Cabin Creek	2	2			
Findley Basin		1			
Allison Creek	4	3	2		600
Hat Creek	5	3	2	11	1,600
Morgan Creek	5	4	2		600
Lawson Creek	10	6	3	5	
Little Morgan Creek	5	6			
Highway					
Trail Creek	1	2		3	
Spud Creek	2	2		2	700
Falls Creek	1	3		3	1,200*
Hamilton Seeding					160**
Mahogany Creek	1	2		1	640*
Patterson Creek					
Grouse Creek	5	4	2		
Meadow Creek	1	1	1	1	
County Line	3	3		5	1,000*+500**
Mill Creek		2			
Big Creek	1	2	1	2	300
Lower Goldburg	1.5	1		2	600*
Bear Creek	2	3			1,800**+400*
Pines-Elkhorn	3	4	1	6	640
Goldburg-Upper Pahsimeroi	15	9	3	5	640
Donkey Hills	5	3	2		900
Rock Creek	1	1			
Burnt Creek	2	2	2	4	
Dry Creek		1	5	10	
Summit Creek	5	5	4	2	
	85	89	30	69	10,820
					2,460**
					13,280

* Vegetation manipulation includes reseeding

** Vegetation manipulation maintenance

Fence Construction

Fences would be constructed to provide exterior allotment boundaries, divide allotments into pastures, protect streams, and control livestock. All fences in wildlife winter range on migration routes would be no more than 38 inches in height, 3 strand, with the bottom wire smooth and at least 18 inches above the ground. On key big game areas, as needed, the top wire will also be smooth. Existing management fences that create wildlife movement problems would be modified. Proposed fence lines would not be bladed or scraped. Gates or cattleguards would be installed where fences cross existing roads.

For any fences in wildlife migration areas the need for let-down fences to allow passage of wildlife would be analyzed, and fences would be added as needed. These let-down fences would be used when livestock are not present. The BLM would be responsible for management of these special purpose fences.

Vegetation Manipulations

Vegetation manipulation projects would be done in irregular patterns creating more edge effect, with islands of vegetation left for wildlife cover. Sagebrush cover would be reduced on approximatley 10,820 acres by chaining, plowing, burning, or chemical treatment. Approximately 3,840 acres of the area with vegetative manipulation would be reseeded. There is an additional 2,460 acres identified for vegetative manipulation maintenance. These are in areas of past projects that are being reinvaded by sagebrush.

The specific acreage by treatment method (chaining, burning, plowing or chemical treatment) is not identified. An area which is now suited for chaining, plowing, or chemical treatment may in the future be better treated by burning. Types of chemicals used could also change as new ones are approved or present ones restricted. Only areas in poor and fair ecological condition were identified for potential land treatment.

Larkspur control is needed in several areas; however, there is a need for a poisonous plant inventory first. After areas with high concentrations of larkspur are identified, then appropriate measures will be taken to eradicate the larkspur. This needs to be done prior to implementation of grazing systems.

The following restrictions, which could further limit proposed treatment acreage, would apply to potential sites.

1. All vegetation manipulation projects would be done in irregular patterns creating more edge (more than strip and block manipulation), with islands of vegetation left for cover.

2. Consultation with Idaho F&G would be required prior to job layout, design, and accomplishment.

3. Burning sagebrush areas would normally occur during April-May or September-October depending on the specific prescription for each area. Burn plans would be developed for each burn.

4. Chemical treatment would consist of applying 2,4-D or other approved chemical to control sagebrush and noxious weeds. Before chemicals are applied, the BLM would comply with the Department of Interior regulations. All chemical applications would be preceded by an approved Pesticide Use Proposal. All applications of restricted-use pesticides would be under the supervision of a certified pesticide specialist. Standards established by the Idaho Agricultural Pollution Abatement Plan, Idaho Soil Conservation Commission would be followed. Consultation with Idaho Department of Health and Welfare and Idaho Department of Fish and Game would be carried out.

5. All land treatment projects on important wildlife ranges would be limited in size, where necessary, by the cover requirements of wildlife.

   --On sage grouse brood rearing areas, the sagebrush canopy cover would not be reduced below 10 percent.

   --On sage grouse nesting and wintering areas, the sagebrush canopy cover would not be reduced below 20 percent.

   --On general antelope ranges, the sagebrush would not be reduced below 5 percent canopy cover. Winter ranges and spring fawning areas would not be treated unless overall benefits to antelope would result.

Standard Operating Procedures

The following procedures would be followed in the construction of all management facilities and vegetation manipulation.

1. Specific projects would be assessed invididually through environmental assessments to determine whether they would be impairing.

2. Roads or trails to new construction or project sites would not normally be constructed. Use of existing roads and trails would be encouraged.

3. Cultural and endangered or sensitive species inventories would be required before any surface disturbance. If either of these were affected, the project would be modified, relocated, abandoned, or in the case of cultural values, the Memorandum of Understanding between the Idaho State Historic Preservation Officer and the U.S. Department of Interior, BLM, Idaho will be followed.

4. If cultural resources found are eligible for the National Register, the BLM will consult with the State Historic Preservation Officer (SHPO) and forward the documentation to the Keeper of the National Register to obtain a determination of eligibility in accordance with 36 Code of Federal Regulations (CFR), Part 63.

5. All wilderness values would be protected on lands under wilderness review or study. Guidelines in the Interim Management Policy would be followed. No impairing projects would be allowed.

6. All actions would address the BLM Visual Resource Management criteria. The management criteria for the specific Visual Class would be followed.

7. Wildlife escape devices would be installed and maintained in all water troughs.

8. In critical wildlife habitat (winter ranges, fawning/calving areas, strutting grounds, etc.), construction work on projects would be scheduled during seasons when the animals are not concentrated to avoid or minimize disturbances.

9. After construction, any disturbed areas would be revegetated with a mixture of grasses, forbs, and shrubs as appropriate for the specific site.

10. Analysis of cost effectiveness would be done on an allotment management plan (AMP) basis prior to the installation of any management facility or land treatment.

11. All areas where vegetative manipulations occur would be totally rested from grazing for at least two growing seasons following treatment.

Monitoring Programs

Studies and evaluation procedures would be initiated in accordance with BLM Manual, Section 4412, to determine if the MFP and specific allotment objectives were being met. These studies would include compilation of actual use, range utilizations, range trend, range/watershed condition, watershed quality, weather data, grazing capacity, and wildlife habitat conditions. The study sites would be selected and (where possible) read cooperatively with permittees and other interested agencies. If specific objectives were not being met, adjustments in seasons of use, livestock numbers (including removal), or grazing systems would be made as needed.

Utilization studies would be conducted on use pastures following the grazing season. These studies would be normally conducted using the key forage plant method (BLM Manual 4410). This method establishes key species and key areas that would be monitored for utilization. Key areas would be selected to represent the majority of the grazing area within an allotment or pasture. Key areas would normally not be selected along stream bottoms or ridge tops but might include special or sensitive areas such as riparian zones. Key species to be monitored would be selected for each allotment and would include the important species for livestock and wildlife (e.g., bitterbrush, Idaho fescue, and bluebunch wheatgrass).

Administrative Procedures

The BLM would issue permits according to regulations (43 CFR 4100) for livestock grazing on each allotment within the framework of the the grazing system. The grazing permit would specify the grazing area, livestock numbers and kind, season-of-use, and total AUMs the permittee may use.

BLM employees would make routine allotment inspections to ensure that livestock numbers and time of grazing for each pasture comply with that authorized by the permit. BLM would control livestock trespass according to grazing regulations.

Implementation Schedule

Adjustments in livestock use could be implemented within one year after the Allotment Management Plans (AMPs) have been completed. However, in most cases, a five year phase-in period would be followed (43 CFR, 4110.3c and 3d).

Based on funding, grazing system implementation, water developments (reservoirs, pipelines and troughs), and fence construction would be completed within five years. Vegetative manipulations would be completed and available for use within 5 years. Monitoring programs for vegetation and wildlife would be established prior to or as grazing management is implemented.

Alternatives

Alternative 1 - No Change

Under this alternative all programs would continue at the current rate of progress. Grazing levels would not be adjusted up or down. Wildlife would not receive an allocation of forage. Areas and situations of improvement would continue in an upward direction, those static would remain so, those in a downward trend would continue to degrade.

The stocking rate would total 27,979 AUMs (current active preference). The only grazing systems existing would be Morgan Creek Allotment, Cabin Creek allotment (both rest-rotation) and Hamilton Seeding (deferred rotation). Of the remaining allotments, 15 would be expected to be operating under allotment management plans within 20 years.

Approximately 30 percent of the Proposed Action range improvements would be implemented or developed within 20 years. However, Burnt Creek would be fenced.

Alternative 2 - Prolonged Change

The stocking rate for this alternative would total 27,979 AUMs, which is the current active preference. Table 2-4 depicts existing forage allocation by allotment. New grazing systems and related improvements would be developed, but implementation would be over a 20-year period instead of a 5-year period as in the Proposed Action. Conversions in kind of livestock would be permitted on a case-by-case basis. No specific forage allocation is made for wildlife in the present forage allocations. Future allocations would be based on continual studies and evaluations. Those allocations would be apportioned on a basis that considered both livestock and wildlife needs.

Additional project development and land treatment projects for livestock grazing would occur on the same time frame as grazing system implementation. Project development for other resource activities would continue under present programs.

Alternative 3 - No Livestock Grazing

Under this alternative all licensed livestock would be removed from the public lands in the EIS area. All forage would be reserved for values other than livestock grazing.

Use on intermingled State and private lands would be possible if the landowner or lease holder of the State tract were able to fence these properties keeping them separate from public lands. No livestock range improvements would be conducted or constructed. Facilities for wildlife, watershed, and other resources and uses would continue under existing programs. Existing range improvements would be maintained if they would benefit other resources. If livestock operators had constructed their own improvements, they would be allowed to recoup them. Trailing permits would be allowed to enable operators access to and from Forest Service and State lands.

Alternative 4 - Maximizing Range Improvement Benefits

Under this alternative, initially, forage allocation would be the same as discussed in the Proposed Action. Initial stocking rate would total 26,689 AUMs.

Improvements as indicated in the Proposed Action involving vegetation manipulation, fencing and grazing systems would be scheduled for only those allotments in the intensive management category. These improvements would be on a five year time frame. Water developments would be installed in allotments as identified in the Proposed Action. Burnt Creek would be fenced.

Allotments were placed in the intensive management category if they possessed one or more of the following characteristics:

1) If 36 percent or more of allotment acreage was in poor condition;

2) If 10-35 percent of allotment acreage was in poor condition and in a downward trend;

3) If the allotment had a seeding from which AUMs were derived.

Allotments falling into this intensive management category are the following:

1) Findley Basin
2) Allison Creek
3) Hat Creek
4) Falls Creek
5) Hamilton Seeding
6) Mahogany Creek
7) Patterson Creek
8) County Line
9) Lower Goldburg
10) Big Creek*
11) Bear Creek*

*These two were placed here because of their seedings.

Alternative 5 - Reduced Livestock

Wildlife and nonconsumptive uses would be optimized. This alternative would allocate 22,778 AUMs to livestock which would result in 3,911 AUMs less for livestock as compared to the Proposed Action. This would be 5,201 AUMs below the existing active preference. Table 2-8 depicts the allocation by allotment. The specifics would include:

- Exclude livestock from Burnt Creek (as in Proposed Action).

- Allocate forage as requested in Wildlife MFP Step 1 (2,751 AUMs). This would decrease the forage available to livestock on the suitable and potentially suitable range by 28 AUMs. All AUMs on unsuitable range would be allocated to wildlife and nonconsumptive uses. Total wildlife needs are depicted on Table 2-2.

- Allocate forage for livestock based on the low statistical production figure on the suitable and potentially suitable rangeland.

- Allow no increases above the existing active preference.

- Allocate forage not needed for wildlife and above the existing preference to nonconsumptive uses.

All range improvements and grazing systems as in the Proposed Action would be implemented. Livestock would be prohibited from Burnt Creek except at water gaps. Water developments would be needed to fully utilize the potentially suitable range.

Table 2-8

Forage Allocation (AUMs)

Reduced Livestock - Alternative 5

Allotment	Suitable	Potentially Suitable	Suitable/ Potentially Suitable to Wildlife	Other	Total to Livestock
Camp Creek	92	1	15		78
Second Creek	77	0	17		60
Lime Creek	129	1	17		73 4/
Iron Creek	442	29	62	160 1/	409
Poison Creek	243	57	18		282
Cabin Creek	893	96	52		937
Findley Basin	36	0	15		36
Allison Creek	267	100	37		330
Hat Creek 2/	1,257	151	108		1,126
Morgan Creek 3/	3,165	735	384		2,279 4/
Lawson Creek	1,328	373	39		1,394 4/
Little Morgan Creek	269	139	27		350 4/
Highway	100	0	0		34 4/
Cronks Canyon	114	18	45		0
Trail Creek	506	150	20		277 4/
Spud Creek	215	23	32		206
Falls Creek	472	0	12		460
Hamilton Seeding	59	0	4		55
Mahogany Creek	54	9	18		45
Patterson Creek	40	0	2		38
Grouse Creek	2,488	204	76		2,218 4/
Meadow Creek	205	8	30		183
County Line	340	1	15		326
Mill Creek	173	1	59		115
Big Creek	329	10	53		286
Lower Goldburg	170	11	-		181
Bear Creek	729	34	9		754
Pines-Elkhorn	1,377	181	129		1,429
Goldburg-Upper Pahsimeroi	3,807	168	63	18 5/	3,583 4/
Donkey Hills	1,305	70	36		1,328 4/
Rock Creek	181	0	57		124
Burnt Creek	530	144	59	18 5/	597
Dry Creek	1,511	142	38		1,615
Summit Creek	1,326	296	52		1,570
Unlicensed	20	0	7		0
Total	24,249	3,152	1,607	196	22,778

1/ Irrigated pasture 2/ Contains Cronks Canyon sheep pasture AUMs 3/ Contains Morgan Creek sheep pasture AUMs 4/ No increases above existing active perference 5/ Fence Burnt Creek

Alternatives Identified but Dropped

A Maximum Livestock Utilization Alternative was identified early in the EIS analysis, however, since this alternative was not a multiple use recommendation it was dropped from further study.

This alternative had provided for all consumptive forage to be allocated to livestock. This allocation was based on the high statistical production figures for the suitable, potentially suitable, and unsuitable rangeland. There would be no allocation for wildlife or watershed. The bighorn sheep pastures in Cronks Canyon and Morgan Creek would be grazed by livestock.

Interrelationships

The BLM's programs and proposals are closely related to the programs of other agencies and individuals. The following interrelationships exist in the Ellis-Pahsimeroi EIS area.

Environmental Protection Agency (EPA)

The EPA has been given initial responsibility for implementing Section 208 of the Federal Water Pollution Control Act Amendment of 1972. Under this Act and Executive Order 12088, the BLM is required to control water pollution that originates from large areas of public land (non-point source pollution).

Fish and Wildlife Service

The Fish and Wildlife Service conducts predator control in the EIS area under a joint agreement with the BLM and the Idaho F&G. The control consists of aerial shooting and limited trapping of coyotes, mostly during the fall, winter, and early spring. No chemical toxicants are used. The Fish and Wildlife Service also serves as the consulting agency under the Endangered Species Act of 1973.

Forest Service (FS)

The EIS area is adjacent to the Challis and Salmon National Forests. There is a formal management agreement with the Challis National Forest for the management of the Morgan Creek allotment. There are parcels of FS land which are fenced into BLM allotments and parcels of public land which are fenced into FS allotments. These parcels are covered in FS/BLM cooperative agreements. BLM and FS personnel have met several times to coordinate the land use recommendations. BLM and Forest personnel have agreed to maintain periodic, informal contacts on the Proposed Action and Alternatives. Grazing systems will be developed to coordinate management with adjacent FS whenever and wherever possible.

Soil Conservation Service (SCS)

The SCS will be involved with permittees, the Idaho Department of Lands, FS and BLM in preparing cooperative or integrated "Ranch Plans" for certain allotments. They have had input into the land use plan recommendations.

Idaho Falls - BLM District

Dry Creek allotment contains a small portion of the Idaho Falls District which is administered by the Salmon District. There is also a portion of Summit Creek allotment which is administered by the Idaho Falls District.

For the purpose of the analysis, we are assuming the acreage as identified in Table 2-5 is correct for each allotment administered by the Salmon District.

Idaho Department of Fish and Game (IDF&G)

There has been coordination between the BLM and IDF&G in developing the Proposed Action. The IDF&G has cooperated with the BLM in determining existing big game numbers and projecting desirable herd size for the EIS area. The IDF&G would review all proposals for all major projects.

Idaho Department of Lands (IDL)

The IDL administers 23,397 acres of land within the Ellis-Pahsimeroi area. These lands are leased by livestock operators for grazing on 10-year terms. Most of the State lands are intermingled with public lands, making separate management impractical. Currently the State leases their lands to the ranchers who run their livestock with their Federal leases.

State Historic Preservation Officer (SHPO)

The Ellis-Pahsimeroi EIS objectives and the guidelines for implementation of range improvements have been designed to comply with the Programmatic Memorandum of Agreement between the BLM, the Advisory Council on Historic Preservation and the Idaho SHPOs.

Idaho Department of Health and Welfare (IDH&W)

BLM entered into a cooperative agreement with the IDH&W in September 1979 with the common objective of protecting water and air resources within the State. The agreement provides for information exchange and agency coordination in solving State water and air quality problems.

County Planning

Portions of Custer and Lemhi counties are included in the EIS area. FLPMA Title II, Section 202 (c) states, "Land Use Plans of the Secretary under this section shall be consistent with State and local plans to the maximum extent he finds consistent with Federal law and the purposes of this act." The county planning commissions were contacted during the development of the land use plan. The Proposed Action was designed to be compatible with their concerns.

Private Land

There are approximately 63,104 acres of private land located in the EIS area. Grazing use of public lands is dependent upon the capability of private lands to sustain livestock during early spring until the forage on public lands is ready for grazing. Private lands are used primarily for production of forage crops to sustain livestock operations through winter months. Most private lands are dependent upon additional Federal or State lands to sustain a year-long cattle operation.

Relationship to National Environmental Policy Act Goals (NEPA)

Section 101 of the NEPA outlines a national environmental policy that all federal agencies are charged to carry out. In order to do this, the agencies must use all practicable means to ensure that their actions fulfill six goals. These goals are listed below and the relationships of the Proposed Action and Alternatives to these goals are discussed.

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.

The Proposed Action and all but Alternative 1 would tend to improve the basic resources of soil, water, and vegetation. However, some areas might suffer from the establishment and livestock use of range improvements. Alternative 1 would maintain present impacts to the resources of soil, water, and vegetation. No critical environmental concerns would be impaired or destroyed.

2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.

The Proposed Action and all the Alternatives would achieve this goal. None of the Alternatives would result in the creation of unhealthful situations. None of the alternatives would significantly change the esthetics or cultural surroundings.

3. Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences.

The Proposed Action and all the Alternatives have the potential for causing unintended consequences. Precise assessment of impacts cannot be completed until several years after implementation of the action. Some undesirable consequences are associated with every proposed use. The Proposed Action and Alternatives 3, 4 and 5 would cause varying economic hardships to many or all livestock permittees.

The Proposed Action calls for an overall reduction in livestock grazing levels. This would increase vegetative production and wildlife populations. Livestock production, in the short-term, would decrease; however, it would increase in the long-term.

4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, whenever possible, an environment which supports diversity and variety of individual choice.

Neither the Proposed Action nor any of the Alternatives would hinder the achievement of this goal.

Cultural and historic values would be protected under all proposals.

Diversity and variety of individual choice would be preserved under the Proposed Action and all Alternatives.

5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities.

Neither the Proposed Action nor any of the Alternatives would affect human population growth.

The Proposed Action is an attempt to balance all uses and users of the range resources so that no one interest or group benefits to the detriment of another. Alternative 3 does not permit the livestock industry use of available resources and therefore would affect red meat consumption.

On a local basis, the livestock range user's standard of living would increase under the Proposed Action and Alternatives 2, 4, and 5; decrease under Alternatives 3; and remain the same under Alternative 1.

All Alternatives except 3 reflect a sharing of life's amenities through a multiple use program.

6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Renewable resources such as vegetation, wildlife, and water would be enhanced by all Alternatives except Alternative 3. This enhancement would occur to a greater or lesser extent depending upon the Alternative chosen. In addition the time in which this enhancement would occur also depends upon the Alternative chosen. The Proposed Action and Alternatives 3, 4, and 5 would permit comparatively fast enhancement. Benefits would occur over a longer number of years under Alternative 1 and 2.

No depletable resources that can be recycled would be affected.

Comparative Analysis of Impacts

Based on the information and analysis presented in Chapters III and IV, a comparative analysis of the beneficial and adverse impacts of the Proposed Action and Alternatives is presented in Table 2-9.

Chapter 11

Table 2-9

Comparative Analysis of Impacts*

Resource Impacts	Current Situation	Proposed Action**	Alt. 1 - No Change***	Alt. 2 Prolonged Change**	Alt. 3 No Livestock Grazing**	Alt. 4 Maximizing Range Improvement Benefits**	Alt. 5 Reduced Livestock**
Soil and Water Resources							
Watershed Condition	93,077 acres (25%) - no gullies 40,954 acres (11%) - gullies on alluvium 238,276 acres (64%) - gullies on uplands	160,538 acres (43%) - condition improved 211,768 acres (57%) - condition maintained	Slight to moderate improvement on 155,759 acres (42%) No change on 216,547 acres (58%)	10-20% decreased gully length on 155,759 acres (42%), little or no change on 216,547 acres (58%)	20+% decreased gully length on 299,465 acres (80%) No change on 74,461 acres (20%)	121,365 acres (33%) condition improved 250,935 acres (67%) condition maintained	160,538 acres (43%) condition improved 211,768 acres (57%) condition maintained
Stream Channel Stability							
Lower Bank Cutting	33.66 miles severe	10-20% improvement	No sig. change (±10%)	10-20% improvement	20+% improvement	10-20% improvement	10-20% improvement
Bottom Deposition	24.65 miles severe	10-20% improvement	No sig. change (±10%)	10-20% improvement	20+% improvement	10-20% improvement	10-20% improvement
Bank Veg. Protection	65.81 miles in good to excellent condition	10-20% improvement	No sig. change (±10%)	10-20% improvement	20+% improvement	10-20% improvement	10-20+% improvement
Range Developments	- - - - - -	330 acres (less than 1%) of surface disturbance (short-term)	99 acres (less than 1%) surface disturbance (short-term)	330 acres (less than 1%) surface disturbance (short-term)	None proposed	155 acres (less than 1%) of surface disturbance (short-term)	330 acres (less than 1%) surface disturbance (short-term)
Vegetation Manipulation	- - - - - -	Short-term loss of cover on 13,280 acres (3%)	Short-term loss of cover on 3,246 acres (less than 1%)	Short-term loss of cover on 13,280 acres (3.5%)	Short-term loss of cover on 6,500 acres (1.7%)	Short-term loss of cover on 10,144 acres (2.7%)	Short-term loss of cover on 13,280 acres (3.5%)
Vegetation							
Current total production (AUMs)	223,049	223,049	223,049	223,049	223,049	223,049	223,049
Initial Forage Allocation (AUMs)							
Livestock	27,979	26,689	27,979	27,979	0	26,689	22,778
Wildlife	0	2,751	0	0	Unlimited	2,751	2,751
Non-consumptive	195,070	193,649	195,070	193,609	Unlimited	193,609	197,520
Expected Production Increase	- - - -	22%	3%	14%	45-90%	3%	26%
Grazing Systems (Allotments/Acres)							
Rest-rotation	2 / 63,138	12 / 212,126	7 / 78,184	12 / 212,126	0 / 0	4 / 43,828	12 / 212,126
Deferred rotation	1 / 321	13 / 101,161	8 / 89,353	13 / 101,161	0 / 0	4 / 20,083	13 / 101,161
Seasonal	31 / 308,847	8 / 59,019	18 / 204,768	8 / 59,019	0 / 0	3 / 13,914	8 / 59,019
Range Developments							
Pipeline (miles)	- - - -	85	25	85	0	38	85
Troughs (number)	- - - -	89	27	89	0	41	89
Reservoirs (number)	- - - -	30	9	30	0	13	30
Fence (miles)	- - - -	69	21	69	0	37	69
Veg. manip. (acres)	- - - -	13,280	3,246	13,280	6,500	10,144	13,280

Resource Impacts	Current Situation	Proposed Action**	Alt. 1 - No Change***	Alt. 2 Prolonged Change**	Alt. 3 No Livestock Grazing**	Alt. 4 Maximizing Range Improvement Benefits**	Alt. 5 Reduced Livestock**
Terrestrial Wildlife							
Antelope	1,194	1,394 (17% increase over Alt. 1)	1,194 (no change over current situation)	1,194 (no change over Alt. 1)	1,600 (34% increase over Alt. 1)	1,394 (17% increase over Alt. 1)	1,394 (17% increase over Alt. 1)
Deer	4,002	5,500 (10% increase over Alt. 1)	5,000 (25% increase over current situation)	5,000 (no change over Alt. 1)	5,800 (16% increase over Alt. 1)	5,500 (10% increase over Alt. 1)	5,500 (10% increase over Alt. 1)
Elk	426	600 (20% increase over Alt. 1)	500 (17% increase over current situation)	500 (no change over Alt. 1)	700 (40% increase over Alt. 1)	600 (20% increase over Alt. 1)	600 (20% increase over Alt. 1)
Bighorn Sheep	349	600 (20% increase over Alt. 1)	500 (43% increase over current situation)	500 (no change over Alt. 1)	900 (80% increase over Alt. 1)	600 (20% increase over Alt. 1)	600 (20% increase over Alt. 1)
Aquatic Wildlife							
Riparian Zone Protection	1 mile	5.3 additional miles protected	5.3 additional miles protected	5.3 Additionl miles protected	All streams protected	5.3 additional miles protected	5.3 additional miles protected
Habitat Condition	2.9 miles (3%) excellent 44 miles (45%) good 25.6 miles (26%) fair 25.6 miles (26%) poor	Burnt Creek - 5.3 miles from fair-poor to excellent-good Mahogany Creek - 2.25 miles from fair-poor to good-fair	Burnt Creek - 5.3 miles from fair-poor to excellent-good Mahogany Creek - No change	Burnt Creek - 5.3 miles from fair-poor to good-fair	All streams at or nearing excellent	Burnt Creek - 5.3 miles from fair-poor to excellent-good Mahogany Creek - No change	Burnt Creek - 5.3 miles from fair-poor to excellent-good Mahogany Creek - 2.25 miles from fair-poor to good-fair
Cultural Resources							
Range Oevelopments	Unknown	11,150 acres (3%) of new surface disturbance	3,345 acres (less than 1%) of new surface disturbance	11,150 acres (3%) of new surface disturbance	6,500 acres (1.7%) of new surface disturbance for Wildlife enhancement	7,839 acres (2.1%) of new surface disturbance	11,150 acres (3%) of new surface disturbance
Effects of grazing	55 sites damaged	Increased trampling - 249,828 acres (67%) No change - 122,478 acres (33%)	Trampling effects would continue as is.	Increased trampling - 249,828 acres (67%) No change - 122,478 acres (33%)	Trampling effects would cease	Increased trampling on 63,590 acres (17%)	Increased trampling - 249,828 acres (67%) No change - 122,478 acres (33%)
Visual Resource							
Range Oevelopments	Unknown	2,661 acres (less than 1%) visual effects	3,345 acres (less than 1%) of visual effects	2,661 acres (less that 1%) visual effects	No visual effects	54 acres (less than 1%) of visual disturbance	2,661 acres (less than 1%) visual effects
Recreation	- - - -	Increased hunting, fishing, and sightseeing opportunities	Increased hunting, fishing and sightseeing opportunities (less than Proposed Action)	Increased hunting, fishing, and sightseeing opportunities (less than Proposed Action)	Hunting, fishing and sightseeing opportunities (greater than Proposed Action).	Increased hunting, fishing and sightseeing opportunities (same as Proposed Action)	Increased hunting, fishing and sightseeing opportunities (greater than Proposed Action)
Economics							
Rancher Income	$786,000 annual income	$57,000 annual income gain	No change	$57,000 annual income gain	$397,000 annual income loss	$17,000 annual income gain	$10,300 annual income gain
Range Improvements	- - - -	$618,000 spent	No change	$618,000 spent	$0	$475,000 spent	$618,000 spent
Recreation Related Income	- - - -	No effect	No change	No impact	No impact	No impact	No impact
Secondary Income Impacts	- - - -	$17,000 additional annual gain	No change	$17,000 additional annual gain	$112,000 additional annual loss	$5,200 additional annual gain	$3,500 additional annual gain
Employment	4,310 jobs	8 additional jobs	No change	9 additional jobs	43 jobs lost	3 additional jobs	3 additional jobs
Social Conditions	- - - -	17 permittees - reduced well-being 19 permittees - increased well-being 9 permittees - no change	No change	Better than Proposed Action	Greater consequences than Proposed Action or any other Alternative	Improved for all 44 permittees	Fewer beneficial effects than the Proposed Action

*20 year projection unless otherwise stated.
**Analysis compared to Alternative 1.
***Analysis compared to Current Situation

CHAPTER III

AFFECTED ENVIRONMENT

AFFECTED ENVIRONMENT

Introduction

This chapter describes the general setting of the Ellis-Pahsimeroi Grazing EIS (Pahsimeroi Resource Area), and the environmental components which would be affected by the proposal or alternatives.

The EIS area is located in Central Idaho. The area extends along the Salmon River south of Salmon to north of Challis and also includes the Pahsimeroi Valley and the headwater streams of the northernmost sections of the Little Lost River Basin.

Elevations range from 4,170 feet at the mouth of Lake Creek on the Salmon River to 9,555 feet on top of the Donkey Hills.

The Salmon River flows through a narrow "V" shaped valley flanked by cliffs, rock outcropings, and moderately to very steep terrain. In contrast, the Pahsimeroi River winds its way through a broad flat "U" shaped valley flanked by mountains.

Tributary watersheds vary in relief depending on the dominant geologic parent materials. Glacial, fluvial and alluvial deposits presently occur on the bottom of all the major stream valleys. The deposits filled the valleys and were downcut by the streams during the retreat of the last glaciers. This created the present "V" shaped valleys.

Air quality in the area is generally good. The quality declines for short periods when agricultural and public lands are burned or cultivated.

The climate has wide ranges in seasonal and daily temperatures, wind directions and velocities, and precipitation. Total annual precipitation varies from less than 8 inches at Ellis to more than 22 inches on top of the Donkey Hills. The mountains and valleys play an important role in the climate of the area. The area receives 30 to 40 percent of its precipitation as snow or rain occurring between October and April. The remaining precipation falls as rain with April, May, June, and July having the greatest amounts.

Soils

The EIS area has four major soil groupings: mountain soils with forest cover, mountain soils with range cover, foothill soils with range cover, and alluvial fans and terraces with range cover (refer to Map 3-1). These four groupings were derived from the combination of the 52 soil mapping units identified in the Ellis-Pahsimeroi URA.

Mountain Soils With Forest Cover (19,023 acres of 5%)

These soils are found in the mountains, steeper side slopes and ridges. They are formed from weathered parent material of basalt and quartzite. Elevations range from 5,000 to 9,000 feet and the mean annual precipitation is 22 inches or more. The soils are moderately deep to deep and are well drained with gravelly and cobbly loam surface fragments. These soils have moderate infiltration and runoff.

Mountain Soils With Range Cover (110,333 acres or 29%)

These soils are found in mountains, steeper sideslopes, and ridges. They were formed from varying geology including basalt, tuff, and quartzite. Elevations range from 4,000 to 8,000 feet with a mean annual precipitation of 11 to 22 inches. These soils are moderately shallow to deep, well-drained with textures ranging from gravelly loam to very cobbly and stoney sandy loams. They have moderate to rapid infiltration rates with runoff moderate to high.

Foothill Soils With Range Cover (114,137 acres or 30%)

These soils are found on the foothills of the mountains with slopes from 5 to 50 percent. They were formed from residual alluvium of mixed geology and some areas of glacial till from mixed geology. Elevations range from 4,300 to 7,000 feet. The mean annual precipitation is 8 to 11 inches. The soils are deep to very deep and well drained. Surface gravels and some stone cover are common on these soils. Surface textures range from loam to very gravelly loam. Infiltration is moderate to rapid with runoff slow to moderate depending on the slope.

Alluvial Fans and Terraces With Range Cover (136,965 acres or 36%)

These soils are found on the alluvial fans and terraces formed from residual alluvium of mixed geology. Elevations range from 4,900 to 8,000 feet and have a mean annual precipitation of 8 to 16 inches. These soils are deep to very deep and usually well drained to excessively drained with some areas of poorly drained soils. Slopes range from 1 to 20 percent. Surface gravels range from 5 to 35 percent with surface textures being loam and sandy loam to very gravelly loams and sandy loams. Infiltration is moderate to rapid with surface runoff usually low.

Soil Inventory

Soils in the area were surveyed through a National Cooperative Soil Survey which included soil scientists from both the BLM and the SCS. The lead agency in this effort was the SCS. A third order survey was conducted to show the extent and location of the soils and to obtain information for planning purposes. The area was mapped at a scale of 1:24,000 using phases

of soil series. Phases were identified and described from soil pits. Percentages of soil phases were established for different mapping units with the help of photo interpretation and spot checking. This soil survey is due to be published by 1986 and will be available at the SCS and BLM offices in Salmon.

Erosion

Water

Erosion potential units were mapped using a terrain analysis procedure (USGS 1978, Oregon DEQ 1978). This procedure identified land parcels according to slope gradient (3 classes: 0-20 percent, 21-50 percent, 50+ percent), soil erodibility according to the SCS K-factor of the Universal Soil Loss Equation (2 classes: 0.00-0.20, 0.21-0.32), and geology based on the dominant groups of geologic parent materials. The resulting 6 class erosion potential map is presented on Map 3-2. The amount of land contained in each erosion potential unit is presented in Table 3-1.

Table 3-1
Erosion Potential
Classes and Acreage of Each

Class	Acres	Percent
Very Low	3,567	1.0%
Low	88,371	23.2%
Moderate	112,162	29.4%
Moderately High	86,894	23.0%
High	82,410	21.6%
Very High	7,054	1.8%
Total	380,458 1/	100.0%

1/ BLM land only

Actual erosion condition was evaluated by preparing erosional and depositional feature maps using stereo aerial photo interpretation and mapping techniques (USFS 1978 and Oregon DEQ 1978). Features mapped included gullies on uplands, gullies on alluviums, talus and bedrock outcrops, debris avalanches/torrent tracks, landslides, alluvial and glacial deposits and stream and river bank erosion features.

Gully density, defined as the total length of gullies per 160 acre parcel of land was measured directly from the erosional feature maps and portrayed on a separate overlay according to 6 density class ranges. This map was used to determine the overall erosion condition of the Pahsimeroi Resource Area.

Wind

Wind erosion was not measured for the EIS area because it is not a common problem. However, there are some mapping units in the foothills, alluvial fans, and terraces soil groups which have duripans at shallow depths. These mapping units have low water holding capacity, sparce vegetation, and are susceptible to wind erosion.

Water Resources

The Ellis-Pahsimeroi EIS area lies in the Salmon River drainage, the lower elevations of the Pahsimeroi drainage, and the headwaters of the Little Lost drainage. Existing water quality is generally excellent, is not expected to be impacted by the Proposed Action or Alternatives, and will not be discussed further in this document.

The Salmon and Pahsimeroi Rivers and their tributaries are designated as "Special Resource Waters" by the State of Idaho. This designation is a result of their outstanding quality, unique ecological significance, and outstanding recreational and aesthetic qualities. The primary uses of surface waters are domestic water supply, agricultural water supply, cold water fisheries (salmonid and native trout), and primary contact and secondary contact recreation (Idaho Water Quality Standards Title 1 Chapter 2).

Watershed Condition

There are 96 named streams, creeks, and gulches and 2 major rivers in the EIS area totaling more than 300 miles of waterways. Generally, streamflow characteristics conform to the typical snowmelt discharge patterns of the Rocky Montain streams. High flows occur in the spring or early summer in response to snowmelt runoff. Streams may be perennial, intermittent, or ephemeral.

As noted in Table 3-1, over 50 percent of the watershed areas have a low to moderate potential for erosion. The most important erosional processes affecting landform stability and water quality are mechanical weathering, mass wasting, channel erosion and fluvial erosion. Erosional features include sheet surfaces, rills, gullies, landslides, avalanches, bank cutting features, bank failures, and cultural disturbance features such as excavations and mine tailings. These processes and features produce and deliver most of the sediment which reaches the streams. Sediment is the single most important nonpoint source pollutant affecting water quality.

No gullies occur on 25 percent of the EIS area. Of the remaining acres, 11 percent has gullies on alluvium and 64 percent has gullies on uplands. The gully density classes occurring on these uplands are depicted in Table 3-2.

Table 3-2

Gullies on Uplands

Gully Density Class (miles/160 acres)

Class	Total Length (Miles)	Percent Total Miles
0.1-0.5	164.0	13.8
0.6-1.0	353.4	29.8
1.1-1.5	276.9	23.3
1.6-2.0	271.3	22.9
2.1-2.5	72.6	6.1
2.6+	47.4	4.0

Total Miles 1,185.6
Total Acres Affected 299,465

Stream Channel Stability

A stream reach inventory of channel stability (Forest Service, 1975), conducted on 99.81 miles of streams in 50 watersheds revealed that three specific erosional nonpoint source water quality problems occur in the Resource Area:

- lower bank cutting
- mass wasting
- bottom deposition

Bank vegetation protection is by far the single most important channel stability parameter that can be influenced by grazing management. Statistical analyses of the channel stability rating data from the EIS area indicated a direct relationship between the severity of channel erosion and the degree of bank protection afforded by bank vegetation.

The channel stability conditions of the streams in the EIS area are presented in Table 4-2 on page 4-4.

Water Availability

Surface water availability is directly related to the ground water and geology. Using aerial photo interpretive procedures, hundreds of seeps and small springs have been mapped in the EIS area. These springs provide water for livestock and wildlife while supporting valuable riparian habitat. Water scarce areas do exist in the area. Water development proposals for these areas are built into the Proposed Action.

Seepage losses on streams flowing across alluvium can be so great that the surface flow disappears and the stream sinks. Many of the small to moderate size watersheds are thus intermittent for a portion of the year, a part of their length, or sink into alluvial deposits before reaching the Salmon or Pahsimeroi Rivers. The Pahsimeroi River contains three distinct "reaches": the perennial streams of the headwaters; the primarily intermittent "sinks" section; and the perennial, spring-fed lower mainstream section, which flows into the Salmon River and is the only portion of the river accessible to anadromous fish.

For more information on data analysis refer to the Ellis-Pahsimeroi URA.

Water Uses

The primary uses of surface water are irrigation of pastures, livestock and wildlife waters, and recreational purposes.

Vegetation

Introduction

The EIS area was mapped to ecological range sites based primarily on differences in vegetation compositon and production, soils, and effective moisture zone. Table 3-3 and Map 3-3 show the eight major vegetation groups: big sagebrush/grass, low sagebrush/grass, threetip sagebrush/grass, chicken sage/grass, shadscale/
grass, Goldburg (special site), seedings, and woodland. Also shown are rock and talus.

All range site descriptions are available for further inspection at the Salmon District Office.

Due to the variety of topography, elevation, aspect, and slope; the diversity of range sites found in the EIS area is great. Sites vary from less than 8 to 22+ inches of effective moisture. This provides habitat for a great number of plant species.

Table 3-3

Acreage by Major Vegetative Type

Big Sagebrush/Grass	203,398
Low Sagebrush/Grass	61,310
Shadscale/Grass	38.212
3-Tip Sagebrush/Grass	31,622
Seeding	4,710
Chicken Sage/Grass	3,716
Goldburg	1,647
Woodland	18,593
Rock and Talus	16,594
Unsurveyed	656
Total	380,458

Rangeland Condition

Ecological rangeland condition is the present state of the vegetation on a range site in relation to the climax (natural potential) plant community for that site. It is an expression of the degree to which the kind, proportion, and amount of plants in a plant community relate to the climax community for the site. Rangeland condition is basically an ecological rating of the plant community as compared to the climax potential of the site.

Range condition, as described above, will be used throughout this EIS.

Range condition in the EIS area is depicted on Map 3-4. Condition class ratings for vegetation within the Ellis-Pahsimeroi are depicted on Table 3-4.

Trend

Trend is the direction of change in range condition and can be either improving, deteriorating, or remaining stable. Trend is usally referred to as upward, downward, or static. Factors used to determine trend are changes in vegetation composition, abundance of seedlings, amount of plant residues, plant vigor, and condition of the soil surface. Several years of photo trend data are available for all but nine allotments. For complete trend information see Ellis-Pahsimeroi URA.

The photo trend method involves comparing data collected over the years using both photos and plots at permanently established sites. There are 91 of these sites in the EIS Area. Twenty-four allotments were surveyed totaling 351,718 acres or 94 percent of the total EIS Area acreage. With respect to photo trend, 74 percent of the surveyed area is in upward trend and 26 percent is in downward trend.

Table 3-4

Ecological Condition

Condition	Acres	Percent
Excellent	7,609	2%
Good	133,160	35%
Fair	133,160	35%
Poor	68,483	18%
Seeded	3,805	1%
Woodland	19,023	5%
Rock and Talus	15,218	4%
Total	380,458	100%

Phenology

Forage plants depend on adequate carbohydrate reserves to start growth in the spring. When spring growth starts, about 50 percent of the carbohydrate reserves are used to produce the first 10 percent of the annual growth (Cook 1966). Grazing during the spring, when plants are drawing heavily on root storage, can deplete carbohydrate reserves and leave the plant low in vigor. Typical grass species stop drawing on reserves and start building root reserves at about the four leaf emergence state (Cook 1966).

Cover

Cover is the amount of ground surface protected by living vegetation, litter (dead organic matter), and various sized stones. According to Stoddart, Smith,and Box (1975), cover plays an important part in a plant's ability to produce forage. The less vegetation cover, the less effectively

water can infiltrate the ground. Reduced infiltration increases runoff, which in turn reduces the effectiveness of precipitation and makes the range more arid than normal. Thus, the percentage of ground protected by vegetation cover can have a pronounced influence on forage production.

Vegetation cover in the EIS area is quite variable among the different range sites. This is due to differences in climate, slope, aspect, soil characteristics, and past range management practices.

Cover was estimated with step-point transects at clipping plot and range condition write-up locations (see Appendix B).

Cover data for each allotment is available for inspection at the Salmon District Office.

Productivity

Vegetation productivity was expressed as the air dry weight (pounds per acre) of the above ground, annual, and live green production. The 1979 clipping studies were the primary measure of ecological site productivity. The clipping studies were conducted during a drought year. Consequently production data was corrected to reflect a normal year's production (see Appendix B, Data Analysis).

The Ellis-Pahsimeroi Modified SVIM file shows production in AUMs available to wildlife and livestock for each allotment. These data are available at the Salmon District Office.

Suitability

Suitability refers to the capability of forage-producing land to be grazed by livestock on a sustained yield basis without damage to the basic resources. Suitable range should not be confused with usable range. Many areas can be grazed by livestock and are therefore usable, but may not be suitable for grazing on a long-term basis because of the resulting damage to the area or adjacent areas.

Range suitability determinations were classified as suitable, potentially suitable, or unsuitable. These designations are shown on Map 3-5. Classes were based on steepness of slope and distance from water. Areas over 50 percent slope were unsuitable, areas less than 50 slope were either potentially suitable or suitable depending on distance from water. Potentially suitable areas were those less than 50 percent slope that could become suitable if water were developed in or near them.

Threatened and Endangered Plant Species

One plant on the Federal engangered list (Thelypodium repandum) and one on the State threatened list (Primula incana) have been identified in the EIS area. The plants are maintaining themselves under present management practices. No changes in management or range improvements will be undertaken which will threaten the viability of these plants' population. Input into Environmental Analysis will assure this protective situation. Future discoveries, if any, will be dealt with on a case by case basis and appropriate mitigations developed to protect the identified species. Through informal consultation with the Fish and Wildlife Service, it was determined there would be no impact to the plants. Therefore, no further analysis of threatened and endangered plants will be made in this EIS.

Livestock Grazing

Cattle, horses, and sheep graze in the Ellis-Pahsimeroi EIS area. Cattle account for 87 percent (24,265 AUMs) of the livestock use. Cattle graze from April 16 to December 31. Sheep account for 11 percent (3,139 AUMs) of livestock use. Sheep graze from April 26 to January 15. Horses use 11 allotments from April 21 to December 31. Horses account for only 2 percent of the total grazing (575 AUMs). Horse grazing will not be further analyzed in this EIS.

There are 44 livestock operators licensed for use in 33 allotments. All allotments are Section 3 allotments. Seven of the allotments are grazed by sheep and cattle, while all other allotments are grazed by cattle. Dates of use, by class of livestock, by allotment can be found in the Ellis-Pahsimeroi URA.

Cow-calf and ewe-lamb operations are the two major types of ranching that occur in the area. The cow-calf operations are part of a base breeding herd of cows and bulls. Cows calve between December and April, and calves are usually weaned and sold in late fall. Cattle are turned onto BLM allotments in the spring. Some remain there throughout the summer, but most are moved to Forest Service ranges or back to private pastures.

Sheep lamb around February or March. When lambs are old enough to travel (April or May), they are trailed to BLM allotments. Six livestock operators graze sheep on seven of the 33 BLM allotments. Of the six, only two have Forest Service permits for their sheep. The other four livestock operators have their sheep on private pasture when they are not on public lands.

The existing active grazing preference is 27,979 AUMs on public lands within the EIS area. The five-year average use has been 26,525 AUMs. This represents 95 percent of the active perference (see Table 2-4).

Wildlife

Terrestrial

Each of the eight major vegetation types (see Vegetation Section) in the EIS area contains several plant communities. The composition, location, and interspersion of the plant communities determines their value to various species of wildlife. The greater the vegetation diversity, the greater diversity of wildlife species.

Approximately 62 species of mammals, 198 species of birds, and 15 species of reptiles and amphibians use the EIS area. A detailed species list is available in the Ellis-Pahsimeroi URA.

Endangered, Threatened or Sensitive Species

Bald eagles occur as winter migrants. Their use is primarily along the main stem of the Salmon River. A lesser amount of use occurs along the lower 15 miles of the Pahsimeroi River. Mature cottonwoods appear to be a necessary habitat component.

American peregrine falcons are extremely rare in the EIS area. Only three or four verified sightings of single birds have been made in the last eight years. No sightings have been made in the last two years.

State sensitive species known to be in the area are the bobcat and long-billed curlew. The ferruginous hawk and pigeon hawk possibly occur but no sightings have been made.

Bobcats frequent the rimrock, foothills, and the more mountainous terrain of the EIS area. Their primary food is rodents and rabbits.

Long-billed curlews are present from about April through August. They are a ground nesting species of open grasslands on mostly level terrain. This habitat conditon is most common near the lower ends of the bars in the Pahsimeroi Valley.

Informal consultation with the Fish and Wildlife Service concluded that formal Section 7 consultation was not needed. Therefore, threatened and endangered species will not be mentioned further in the document.

Big Game

Big game of the EIS area include deer, elk, antelope, bighorn sheep, black bear, and cougar. Habitat essential to species survival and viability is termed "critical" habitat. Critical habitat for the four species of grazing big game animals is shown on Map 3-6. Deer, elk, and bighorn sheep are

present in quantity from late fall through the spring period. The Cronks Canyon bighorn sheep population is the only significant exception with most of the 50-75 animals being on or adjacent to public lands most of the year. Antelope are year-long residents, although, a portion of the population migrates into the Little Lost drainage in the Idaho Falls BLM District to winter.

Approximate number of deer, elk, antelope, and bighorn sheep are shown on Table 2-2. Population trends are up for deer and elk. Antelope populations are static to slightly increasing. The Mount Borah bighorn sheep population is showing a sizeable annual increase. The Cronks Canyon bighorn herd is increasing slightly and the Morgan Creek population is mostly static.

Black bears outnumber cougar, but neither species are very common on the public lands in this area. They will not be discussed further in this statement.

Estimated dietary composition by forage class and season for deer, elk, antelope, and bighorn sheep is shown in Appendix B. Acreages of big game range by season are shown in Table 3-5.

Table 3-5

Total Acres of Big Game Range by Season

	General Winter	Critical Winter	Spring	Summer
Deer	87,371	15,013	87,371±	--
Elk	24,563	8,289	37,901	795
Antelope	55,473	16,166	55,473	225,943
Bighorn	11,335	11,335	11,335	1,327

Upland Game

Upland game birds of the EIS area in order of abundance include chukar, sage grouse, Hungarian partridge, blue grouse, spruce grouse and ruffed grouse. Mourning doves are quite abundant during the late spring/summer period but most have migrated south prior to the fall hunting season. Ring-necked pheasant are very common on private lands along the Pahsimeroi River, but very little use is made on public lands. Important sage grouse habitat is shown on Map 3-7. Spruce grouse, ruffed grouse, and pheasants will not be discussed further.

Cottontail and pygmy rabbits are the two mammalian upland game species. Pygmy rabbits are not very common and cottontails are abundant only in very localized spots. Though technically not classed as a game animal, the blacktail jack rabbit has been very abundant in the Pahsimeroi Valley the last several years.

Waterfowl

Small resident populations of waterfowl, primarily mallards and green-winged teal, occur along some of the streams and small reservoirs in the EIS area. There are no critical waterfowl nesting or migratory nesting sites in the EIS area.

Fur Bearers

The majority of the species which are harvested for their pelts are associated with riparian habitats. These species are raccoon, weasel, mink, skunk, beaver, and muskrat. Fox, coyote, bobcat, and badger are also found throughout the EIS area.

Non-game

Non-game wildlife are those species for which no hunting season or harvest is allowed. These species include numerous birds, mammals, reptiles, amphibians, and invertebrates. These animals make up the majority of the fauna in the EIS area.

Riparian habitats have the greatest species diversity and are of major importance for many of these animals. Riparian habitats become even more important during periods of drought. At present, riparian areas are used extensively by cattle which has resulted in habitat degradation for riparian non-game species. The riparian areas are used extensively by migrating song birds and are critical to many species.

Although the number of miles of riparian habitat and its condition are not known, the bank vegetation protection section of Table 4-2 gives an indication of miles of stream and condition.

Aquatic

Approximatly 196 miles of streams are in the EIS area, with 97 miles in private ownership and 99 miles administered by the BLM. Several streams contain anadromous and resident species while others may contain only resident species. Anadromous fish cannot migrate up the Pahsimeroi River past the fish trap which is about one mile upstream from the mouth.

During years when the required amount of eggs are obtained from fish trapped, the remaining fish are released above the trap.

Because of the Pahsimeroi fish trap situation, the maintenance of the anadromous fish is beyond the control of this document and will not be discussed further.

Nineteen streams in the area were surveyed to determine habitat condition. Of the streams surveyed, 44 percent were found to be in "good" condition, 26 percent in "fair", 26 percent in "poor", and the remainder were considered in "excellent" condition (see Table 3-6). For specific stream data obtained from the survey, as well as survey procedure, please refer to the Ellis-Pahsimeroi URA. Table 3-7 depicts the limiting factors for improving stream potential for spawning and rearing of aquatic wildlife.

Table 3-6

Stream Condition for Inventoried Streams on BLM Land

Stream	Stream Miles - Condition				
	Excellent	Good	Fair	Poor	Total
Allison			1.35		1.35
Big	0.6			6.75	7.35
Burnt			2.85	5.30	8.15
Cabin			4.23		4.23
Cow		1.75			1.75
Deer			2.23		2.23
Goldburg		0.7	0.67		1.37
Hat		1.1	1.1		2.2
Iron		.77			0.77
Mohogany			1.75	0.5	2.25
McKim			0.47		0.47
Morgan			7.5		7.5
Little Morgan		2.75		2.75	5.5
Pahsimeroi-Upper		11.4		4.5	15.9
Patterson	0.33		0.9	5.09	6.32
Poison			1.58		1.58
Rattlesnake			1.1	0.9	2.0
Salmon River		26.5			26.5
Summit	2.0				2.0
	2.93	44.2	25.73	25.79	98.61

Wild Burros

A small feral herd of burros (19+) exist in the Morgan Creek Allotment (4 411). No specific forage allocation for the animals is proposed under this action as the MFP Step 2 recommends their removal. This recommendation is based on two main factos: (1) no viable herd existed at the time of passage of the Wild Horse and Burros Act of 1971; and (2) any further increases in their population would threaten critical bighorn sheep range and deer winter range.

TABLE 3-7

EXISTING AND POTENTIAL SPAWNING AND REARING HABITAT CONDITIONS
IN THE ELLIS-PAHSIMEROI PLANNING UNIT AND THE LIMITING FACTORS

Creek	Spawning Existing	Spawning Potential	Spawning Limiting Factors	Rearing Existing	Rearing Potential	Rearing Limiting Factors
Allison	Fair	Fair	Gravels/ Gradient	Fair	Fair/Good	Pool:Riffle Dewatering
Big	Exc.-Upper Poor-Lower	Exc.-Upper Poor-Lower	Dewatering	Exc.-Upper Poor-Lower	Exc.-Upper Poor-Lower	Dewatering
Burnt	Fair/Poor	Excellent	Livestock	Fair/Poor	Excellent	Livestock
Cabin	Poor	Poor	Stream Size/ Gradient	Poor	Poor	Pool:Riffle Stream Size
Cow	Poor	Poor	Gradient	Fair	Fair/Good	Pool:Riffle Dewatering
Deer	Poor	Poor	Stream Size/ Gradient	Poor	Poor	Stream Size/ Pool:Riffle
Goldburg	Good	Excellent	Private Land	Good	Excellent	Private Land
Hat (Little)	Fair/Poor	Good	Siltation/ Private Land	Fair	Good	Siltation/ Public Land
Hat (Big)	Fair	Good	Siltation/ Private Land	Fair	Good	Siltation/ Private Land
Iron	Unknown	Unknown	Private Land	Unknown	Unknown	Private Land Dewatering
Mahogany	Fair	Fair	Livestock/ Elevation	Fair	Fair	Livestock/ Elevation
McKim	Fair	Fair	Gravels/ Gradient	Fair	Fair	Pool:Riffle Dewatering

TABLE 3-7 (Continued)

EXISTING AND POTENTIAL SPAWNING AND REARING HABITAT CONDITIONS IN THE ELLIS-PAHSIMEROI PLANNING UNIT AND THE LIMITING FACTORS

Creek	Spawning Existing	Spawning Potential	Spawning Limiting Factors	Rearing Existing	Rearing Potential	Rearing Limiting Factors
Morgan	Fair/Poor	Good	Private Land Dewatering Beaver Dams	Fair	Good	Dewatering Diversions Private Land
Little Morgan	Good-Upper Poor-Lower	Good-Upper Poor-Lower	Dewatering	Good-Upper Poor-Lower	Good-Upper Poor-Lower	Dewatering
Pahsimeroi (Upper)	Fair/Good	Good	Dewatering	Fair/Good	Good	Dewatering
Pahsimeroi (Lower)	Good/ Excellent	Excellent	Private Land Dewatering	Good/ Excellent	Excellent	Private Land Dewatering
Patterson	Good-Upper Poor-Lower	Good-Upper Poor-Lower	Mining Dewatering	Good-Upper Poor-Lower	Good-Upper Poor-Lower	Mining/ Dewatering
Poison	Poor	Poor	Gradient/ Dewatering	Poor	Fair	Dewatering
Rattlesnake	Poor	Poor	Gradient/ Gravels	Poor	Fair/Poor	Dewatering Pool:Riffle
Salmon River	Fair/Good	Fair/Good	Siltation	Good	Excellent	Dewatering/ Diversions
Summit Creek	Good/ Excellent	Excellent	State Land/ Livestock	Good/ Excellent	Excellent	State Land/ Livestock

Removal of the burros is beyond the scope of this EIS and no further discussion of them will be made in this document. Detailed information on this subject can be found in the Ellis-Pahsimeroi URA available at the Salmon District Office.

Cultural Resources

A total of 141 sites have been recorded in the Ellis-Pahsimeroi EIS area. One hundred nineteen of these sites are on public lands. The 119 sites on public lands include one dump, one pictograph, eight rock structures, eight rock shelters, ten combination sites (Lithic scatters, rock shelters) and ninety-one open site lithic scatters. The condition of cultural resources is poorly documented. No cultural resource sites are currently listed on the National Register of Historic Places for the EIS area. Further information of the sites on public lands is available in the Ellis - Pahsimeroi URA.

The predominant existing cultural materials are implements of stone and other durable materials. Most perishable goods have been lost. Table 3-8 is a summary of available site condition information based on approximately 35 percent of the sites in the EIS area.

Appendix D describes procedures employed to identify the cultural resources and known cultural resource site data for the EIS area.

Table 3-8

Cultural Resource Site Condition

Site Condition	Number of Sites
Excellent	3 sites
Good	33 sites
Poor	8 sites
Unknown	75 sites
Total	119 sites

The lack of information on site condition points out the need to consistently gather this type of data in the future. It also impairs the possibility of determining the major agents of deterioration. Where such information exists, it is apparent that negative impacts have resulted from several land use activities.

There are several types and degrees of cultural resource deterioration. The most severe type is the complete loss of cultural elements which results in the removal of non-renewable information. Modification of physical relationships between artifacts and/or features destroys the potential to infer social organization, chronology, site function, and cultural affiliation.

Introduction of any other elements on a site may obscure the nature of the remains. Disturbance can result from cattle trampling fragile surface sites. Erosion from over-grazing and natural weathering also can cause disturbance. The impacts of trampling are often intensified by accompanying erosion. Documentation of deterioration that exists shows that 55 sites have been damaged by erosion and/or livestock trampling. These and other deteriorating agents contribute to the weathering and damage of sites.

Visual Resources

The EIS area is composed of two distinctly different landscapes. The portion from Lake Creek to Challis Creek is characterized by a narrow canyon formed by the Salmon River. Flanking the river canyon are cliffs and rock croppings which give way to more rounded foothills. Periodically the narrow river gorge opens into a series of basins. The interspersed canyon sections rise in multicolored cliff walls and eroded steep slopes. This area lies in a recommended Visual Resource Management (VRM) Class I.

A broad basin occurs at the junction of the Pahsimeroi and Salmon Rivers. From this junction to Summit Creek and Dry Creek, the mountain flanked Pahsimeroi Valley stretches southeast. The valley has a broad (approximately 5 to 9 miles) fairly flat floor. The foothills are frequently carved by the narrow drainages and perennial and intermittent creeks, sometimes forming sheer walled canyons. This area lies mostly in a recommended VRM Class III with the southern portion containing smaller sections in areas recommended for VRM Classes I and II.

The vegetation complex of this region is diverse, changing with factors such as altitude, aspect, soil type, and moisture. The vegetation section of this chapter discusses the variable vegetation types.

A VRM inventory was conducted for the EIS area. The proposed VRM classes for the area are depicted on Map 3-8. Each VRM class describes a different degree of modification allowed in the basic visual elements of the landscape (form, line, color, and texture). Further explanation on the degree of modification allowed in the different classes and how the VRM classes are derived are in the BLM 8400 Manual. Table 3-9 depicts the five recommended VRM classes the acreage in each, and brief description of each class.

Table 3-9

VRM Classes and Descriptions

Class	Acreage	Description
I*	91,641	Wilderness study areas and Salmon River Wild and Scenic River study area.
II	54,495	Upper Pahsimeroi Area of Borah Peak, Donkey Hills, Salmon River
III	228,257	Road from Ellis to Howe and foothills along Highway 93.
IV	184,128	Background hills along Salmon River and Pahsimeroi Valley.
V	80	Ezra Creek dump, small dumps up Pahsimeroi Valley, gravel pits.
Total	466,960	

*Temporary designation until studies are completed:

Salmon River - 68,351 acres (30,310 Class II and 38,041 Class III.)

Wilderness - 23,290 acres (19,400 Class III and 3,890 Class IV.)

Recreation

Major recreation activities occurring in the EIS area which may be affected by the Proposed Action and Alternatives are hunting, fishing, and sightseeing. Very little hard data exists describing visitor use in the area. The majority of recreationists come to the EIS area during the late spring, summer, and fall. Most visits result from hunting and fishing trips. Others sightsee as they drive through the area or float the Salmon River section.

The Salmon River has a major highway that follows its course through the general northern width of the EIS Area. High recreation use is received since this is the only highway route between the population centers of Challis and Salmon.

The major route through the Pahsimeroi Valley, which generally follows the north-south length of the EIS Area, is a secondary road that is gravel for part of its length. Comparatively limited recreation use is received since it is not a through route between any population centers.

Several types of hunting are available in the area: big game (primarily antelope, some deer, and minor amounts of elk, bear, and cougar), small game and varmit, waterfowl, and upland game bird hunting.

Major campgrounds are fenced from livestock; however, camping use also occurs in nondesignated areas which are not segregated from grazing.

Recreation use will increase with population increases which are occurring in the Lemhi-Custer County areas as a result of large mining operations in the surrounding areas.

Wilderness

The BLM wilderness inventory has been completed in the EIS area. Two areas, Goldburg 45-1, and Burnt Creek 45-12, have been identified as Wilderness Study Areas (WSAs). They will be studied for their suitability as wilderness within the BLM's planning system.

Grazing is an acceptable use in wilderness areas and would not affect wilderness values. As noted in Chapter II, Standard Operating Procedures, Number 4, specific projects would be assessed individually through environmental assessments to determine whether they would be impairing. No impairing projects would be allowed. Since impacts to wilderness will not be allowed, wilderness will not be mentioned further in this EIS.

Economics

Introduction

Custer and Lemhi Counties were used as the economic region in this EIS. The EIS area lies entirely within these two counties and no major trade area for the region exists outside these counties.

The livestock industry would be the most impacted by the various alternatives. According to the 1980 Idaho Agricultural Statistics, there were 23,500 stock sheep and lambs and 91,000 cattle and calves in the region as of January 1, 1980. Total feed requirements would be 1,148,400 Animal Unit Months (AUMs). Permittees in the EIS area run 5,700 sheep and 8,900 cattle with annual feed requirements of 120,500 AUMs. The EIS area has a total preference of 28,183 AUMs or 23 percent of the permittees' total needs. The 5-year average use is 26,525 AUMs or 22 percent of the permittees' total needs.

Income

Total regional (Custer and Lemhi Counties) income was $42 million in 1978. This is a 35 percent growth in real money terms (after adjusting for inflation) since 1975. Non-farm industries accounted for 77 percent of 1978 income. Non-farm industries grew by 22 percent since 1975. Statewide total

income was up 14 percent since 1975 with non-farm industries up 15 percent. In 1978 the dominant non-farm industries in the region were Government (25 percent), manufacturing (16 percent), and retail trade (10 percent) (Bureau of Economic Analysis 1980).

Total farm income in the region was $10 million in 1978. This is 117 percent higher than 1975 (after adjusting for inflation). Statewide farm income declined 5 percent during this period. Farm income accounted for 23 percent of the total regional income making agriculture the number two industry in the region (Bureau of Economic Analysis 1980).

Total livestock income in the region was $9 million in 1978. This is based on the assumption that the relationship between farm and livestock income is the same as the relationship between farm and livestock receipts. In 1978 livestock receipts accounted for 90 percent of total farm receipts in the region (Bureau of Economic Analysis 1981).

To determine what impact the proposal and alternatives would have on rancher income, ranch budgets were prepared by the Economics and Statistics Service of the U.S. Department of Agriculture. Budgets were prepared for five groups of cattle and one sheep group. The results of this budgeting effort are shown in Table 3-10. The full budgets have been reproduced in Appendix E along with an explanation of the process used to collect the budgets. Table 3-10 shows that income generated by permittees' ranches is about $786,000 (before accounting for returns to land). This represents 9 percent of the region's livestock income, 8 percent of the region's farm income, and 2 percent of the total regional personal income.

Employment

Total regional employment was 4,310 in 1978. Government was the largest employer accounting for 26 percent of total employment. Agriculture, retail trade and manufacturing were the next largest employers with 19, 12, and 10 percent respectively (Bureau of Economics Analysis 1980). Since 1975 employment in the region has risen 15 percent while farm employment has risen 5 percent. This compares with statewide increases of 17 and 7 percent respectively. That portion of farm employment attributable to the livestock industry is not identifiable.

Ranch Consolidation and Conversion

There has been very little ranch consolidation or conversion out of ranching in the EIS area.

Capital Position

As early as 1925, it was recognized that the annual value of the federal grazing privilege was being capitalized into rancher property. "It is argued that long use of the range in connection with the early settlement of agricultural lands has resulted in capitalizing the values of public pasturage as part of the value of the ranch..." (USDA 1925).

A report published by the Utah State University Experiment Station stated, "there was nothing illegal or unethical in the fact that grazing permits took on a value; ranchers just reacted to an economic situation that was created by government policy. Permit values rose because ranchers who had grazing permits were capturing economic rents in the form of low cost grazing, i.e. the grazing fee and recognized non-fee costs did not equal the value of the grazing to ranchers. Thus, the authorization to use the federal lands and the associated economic rents were capitalized into rancher-owned assets. This value could show up either as a permit value or as an increased value of the commensurate property" (Nielson 1971).

Although the BLM does not recognize this capitalized value of grazing permits, it is known that permits have sold at prices ranging from $25 to $55 per AUM in southern Idaho (Federal Land Bank 1979, Production Credit Association 1979, Farm Home Administration 1979, personal communication).

Table 3-10

Ranch Budgeting Results

Group	Number of Permittees	Return above Cash Costs	Total Income
1 - 0-299 Head of Cattle Spring-Fall Grazing	15	$ 9,840	$147,600
2 - 0-299 Head of Cattle Spring-Summer-Fall Grazing	9	$10,847	$ 97,803
3 - All Herd Sizes, Cattle Spring Grazing Only	5	$ 7,764	$ 38,820
4 - 300 Head or More Cattle Spring-Summer-Fall Grazing	7	$20,163	$141,141
5 - 300 Head or More Cattle Spring-Fall Grazing	5	$18,845	$ 94,225
6 - All Sheep Sizes	6	$44,407	$266,442
Total	44 1/	- - - -	$786,031

Source: Economics and Statistics Service, U.S. Department of Agriculture, Fort Collins, Colorado, February 1981.

1/ Four permittees have both cattle and sheep enterprises.

Social Conditions

Conflicts related to public land and grazing management are common. Existing grazing allocations are favorably viewed by members of the community whose economic livelihood and security are derived from cattle or ranching operations but are seen as potentially harmful by those whose primary interest is aesthetics or recreation. These kinds of conflicts are likely to become more intense in the study area as it continues to experience growing popularity as a recreation area.

General social values are expressed through satisfaction with community and neighborhood, educational facilities, health services, economic climate, recreation opportunities, religious institutions, etc. One major consideration is the way a person perceives their social situation and provides a "sense" of social well being that can be positive or negative. For example, one individual could be satisfied with living on a ranch which would produce a sense of social well being where another person may feel isolated on a ranch and not be happy at all. Both perceptions of social well being are a reality to those individuals even though they are opposites. Another consideration is the effect a person's economic situation has on their sense of social well being.

There are two distinct groups in the area whose social well being is affected differently by their economic situation. (1) Those whose livelihood is derived from ranch related activities and (2) those who derive their livelihood from non-ranch activities. Attitudes of individuals whose economic situation can be substantially changed by BLM decisions are understandably uneasy and may not have strong feelings of social well being.

A ranching lifestyle has been described as "a family oriented lifestyle which provides a good quality of life for those who choose it." With high expenses and cow beef prices in the 1970's, ranchers have been subjected to economic and social pressures that have threatened continuation of this very way of life.

Economist Schultz (1970) found that the majority of western livestock operators interviewed considered ranching a way of life before they evaluated it as a profit making enterprise. Further, it was felt that rural living was "the only way to go." Ranchers contacted in the study area displayed many of the qualities found by Schultz. They are concerned about their ability to continue their way of life in the face of inflation, complex technology, and governmental regulations.

Beyond these lifestyle oriented concerns, people seem to feel that the quality of life in the study area is fairly good. However, there are some that feel that the overall quality of life is deteriorating because of mine development over which BLM has no control.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter describes the kind and degree of environmental impacts expected from the Proposed Action and five Alternatives. Resources (soils, vegetation, etc.) are discussed in the same order as in Chapter III. Soils and water resources have been combined. Wilderness is not discussed in this chapter because no significant impacts are expected.

Portions of the Proposed Action would result in significant impacts: (1) allocation of vegetation, (2) livestock grazing management, and (3) range improvements and land treatments. These three topics will be discussed where appropriate for each resource under the Proposed Action and under each Alternative.

Environmental assessment requires a standard by which measurements and projections can be compared. Anticipated impacts are arrived at by comparing the present situation with projections for the future. As used in this chapter, long-term impacts are those expected to occur past a 5-year period. Short-term impacts are not expected to occur beyond a 5-year period.

Forage Allocation

The AUMs that would be allocated to livestock under the Proposed Action and Alternatives are compared to the present situation. (Alternative 1, No Action, is the present situation.) The present situation concerning livestock grazing, refers to the active grazing preference which in most cases, is the 5-year average licensed use. Therefore, 27,979 AUMs is the point of comparison for the Proposed Action and Alternatives.

Livestock Grazing Management

Grazing management systems and livestock numbers are discussed in this section. It is assumed that the BLM would have the funding to develop and implement the livestock management systems described in the Proposed Action or in Alternatives 1, 2, 4, and 5. It is also assumed that the BLM would have the funding and personnel required to carry out the monitoring and make adjustments in areas where multiple use objectives are not being met.

Range Improvements

Range improvements include projects to improve livestock grazing management and wildlife habitat, i.e. fences, spring developments, and reservoirs. Included are land treatments designed to improve the quality

and/or quantity of livestock forage on public lands in the EIS area. It is assumed that the BLM would have the funding needed to undertake the various range improvements mentioned in this EIS.

Proposed Action

Soils-Water Resources

The analysis of the impacts of the Proposed Action and all the Alternatives is based upon an assessment of aerial photo interpretive erosional feature maps, terrain analysis erosion potential maps, gully density maps, a statistical analysis of gully density with respect to erosion potential, range condition, range trend, and present and future cattle densities per allotment. The results of this assessment are presented in Table 3-1 and 3-2 and discussed on pages 3-3 and 3-4.

The effects of livestock grazing intensities of the Proposed Action would result in a general, moderate improvement in erosion conditon. There are no allotments where watershed conditons are presently deteriorating. This is believed to be due to the continuing recovery of the watersheds after cessation of high intensity grazing around the turn of the century.

On areas with grazing systems, the Proposed Action would cause improvement in watershed conditions on 156,887 acres or 42 percent of the EIS area. There would be little to no change in erosion on 156,399 acres or 42 percent of the area. Those areas which would continue under seasonal grazing would show improvement in 3,651 acres (1 percent of the area) and maintenance on 55,369 acres (15 percent of the area).

Construction of improvements would cause temporary disturbance of vegetative cover on 330 acres which is less than 1 percent of the EIS area. Vegetation manipulations contained in the Proposed Action would affect 13,280 acres or 3 percent of the area.

The increased erosion occurring on this land following implementation would decrease with time as vegetation recovers and surface protection increases. Land areas affected by construction of range improvements and implementation of vegetation manipulation projects are depicted in Table 4-1.

With respect to channel stability, the Proposed Action would result in general improvement (Table 4-2). The total miles of severe lower bank cutting and bottom deposits (sedimentation) would decrease by 10-20 percent. Mass wasting would not be affected. The total miles of bank vegetation protection in good to excellant condition would increase by 10-20 percent.

Table 4-1

Acres of Disturbance Resulting from Facilities and Projects of the Proposed Action

Action	Amount of Disturbance per Action	Acres Affected	Percent Resource Area	Duration of Impact
Pipeline	1.5 acres/mile	128	0.03%	1-5 years
Reservoirs	1 acre/reservoir	30	0.0078%	5-20 years
Fence	1.2 acres/mile	83	0.021%	20 years
Troughs	1 acre/trough	89	0.023%	20 years
Vegetation Manipulations without reseed		6,980	1.83%	1-5 years
Vegetation Manipulations with reseed and maintanence		6,300	1.65%	1-5 years
	Total	13,610	3.56%	

Vegetation/Livestock Grazing

Forage Allocation

Initial stocking rates under the Proposed Action (Table 2-4) would serve to bring stocking in line with the inventoried carrying capacity of each allotment. A total of 26,689 AUMs have been allocated for livestock grazing (1,290 AUM reduction). This represents a 4.6 percent reduction of current active preference. Table 2-4 gives an allotment breakdown of reductions or increases from the active preference.

Vegetation would benefit from this adjustment because the stocking rate under the Proposed Action would not exceed production on any allotment. The long-term (20 years) effects would result in 22 percent greater vegetative production than under Alternative 1. Twenty years after implementation, 35,016 AUMs should be available for livestock grazing. This is a 31 percent increase over the initial stocking rate.

Table 4-2

Channel Stability Indicator 1/		Total Miles 2/	Miles of Stream by Fishing Class 3/				Potential Impacts 4/					
			1	2	3	4	PA	1	2	3	4	5
Lower Bank Cutting	E	18.95	6.70	2.50	3.55	6.20	-	0	-	=	-	-
	G	18.25	8.45	2.25	0.80	6.75	-	0	-	=	-	-
	F	28.00	10.40	3.50	6.40	7.70	+	0	+	++	+	+
	P	33.66	0.30	9.30	3.80	20.26	+	0	+	++	+	+
Mass Wasting	E	52.90	14.95	4.90	4.50	28.55	0	0	0	0	0	0
	G	27.25	11.05	7.35	5.85	3.00	0	0	0	0	0	0
	F	13.10	1.50	4.80	4.00	2.80	0	0	0	0	0	0
	P	6.46	0.30	1.60	0.40	4.16	0	0	0	0	0	0
Bottom Deposition	E	15.25	3.70	4.65	4.35	2.55	-	0	-	=	-	-
	G	23.26	9.20	2.60	6.10	5.36	-	0	-	=	-	-
	F	29.45	9.95	10.30	3.35	5.85	+	0	+	++	+	+
	P	24.65	4.20	0.20	3.05	17.20	+	0	+	++	+	+
Bank Vegetation Protection	E	35.80	15.10	2.25	6.00	12.45	-	0	-	=	-	=
	G	30.01	10.60	6.70	5.95	6.76	-	0	-	=	-	=
	F	16.30	1.35	8.60	1.40	4.95	-	0	-	=	+	-
	P	16.70	0.25	0.20	0.50	15.75	+	0	+	++	+	+

1/Refer to U.S.D.A. National Forest Service Channel Stability Rating (1975) Evaluation Form. E - Excellent, G - Good, F - Fair, P - Poor

2/Total miles derived from stream surveys performed summer 1979 and 1980. Refer to URA (.38)

3/Fishery Classes: 1 - Anadromous and/or excellent native population; 2 - Marginal anadromous with good native population; 3 - Non-anadromous with fair native population; 4 - No fisheries.

4/Potential Imapacts in miles of stream in a given severity class

= - 20+% increase
- - 10-20% increase
0 - +10% - no significant relative change
+ - 10-20% decrease
++ - 20+% decrease

Several years of onsite observation by BLM staff indicate that implementing intensive management and allocations would result in no problems meeting all objectives outlined in Chapter II. As additional forage becomes available in the future, it would be allocated on a basis that would consider all consumptive uses.

Grazing Management

Over a 5 year period, 25 of 33 allotments will be placed under intensive grazing management; 13 with deferred-rotation and 12 with rest-rotation. Table 4-3 depicts how acreage in grazing systems would change with the Proposed Action.

Table 4-3

Grazing System Acreage

	Rest Rotation Acres-Percent		Deferred Use Acres-Percent		Seasonal Use Acres-Percent	
Present	63,138	17	321	0*	309,347	83
Future	212,126	57	101,161	27	59,519	16

*0.0861%

The season of grazing is important because forage plants depend on carbohydrate reserves to start growth in the spring (see Phenology section in Chapter III). Delayed turnout would provide plants a chance to develop enough photosynthetic tissue to be self-sustaining and not be dependent on root reserves. Plants could also build up the tissue needed to produce seed. When plants are grazed after carbohydrate reserves have been replenished, the vigor or health of the vegetation improves, in turn improving forage condition (Parker 1954).

Grazing systems also affect the physiology of forage plants, providing significant factors for impact analysis (Hall, 1978). Systems were selected to satisfy vegetation requirements for improvement, while considering factors such as project development and the needs of each ranch operator. Grazing systems would consist of rest-rotation and deferred rotation grazing. Eight allotments would continue use with no formal grazing system (seasonal grazing).

Under seasonal grazing, rangeland is typically grazed at the same time in the same pattern year after year which results in areas of overuse and underuse. This pattern usually begins with early spring grazing. Early and continued grazing reduces plant vigor, which in turn reduces the plant's ability to reproduce and to produce ground cover and litter. Trend and condition on seasonal use allotments are thus lower than those with grazing systems (Hall, 1978).

Many times individual permittees will implement their own system of rotation through herding, salting, and water developments. This results in better range utilization. However, often these permittees become too busy with other operational matters to keep abreast of the grazing situation. Where possible, it is preferable to have grazing systems implemented on each allotment which have been developed by mutual consent of both permitties and BLM resource personnel.

Deferred grazing systems are designed to prevent livestock from grazing the same pasture during the early growing season in two succeeding years. Ideally, on a three-pasture deferred system, a particular pasture would be grazed in the spring in year one, the summer in year two, and the fall in year three. Spring grazing use would be made on the pasture that received fall use the year before. Grazing treatments would vary depending on the number of pastures or variability in the size of pastures in the allotment. Utilization would not exceed 50 percent of the available forage in the pasture grazed. By deferring spring use, plants would have a chance to replenish carbohydrate reserves. This deferment and reduced stocking rate would improve range condition and production (Stoddart, Smith & Box, 1975). Thirteen allotments have been proposed for deferred rotation systems.

Twelve allotments are recommended for rest-rotation grazing. Many of these would be coordinated systems with the adjacent Forest Service allotments. Rest-rotation systems vary as to season of use and number of pastures. Under this system at least one pasture must be rested each year. Under a three-pasture system, a particular pasture would be used in the spring/summer the first year, in the fall/winter the second year, and rested the third year. Table 4-4 shows an example of a three pasture rest-rotation system.

Table 4-4

Example of a Rest-rotation Grazing System

	Pasture 1	Pasture 2	Pasture 3
Year 1			
Spring/Summer	X		
Fall/Winter		X	
Rest			X
Year 2			
Spring/Summer			X
Fall/Winter	X		
Rest		X	
Year 3			
Spring/ Summer		X	
Fall/Winter			X
Rest	X		

Range Developments

The Proposed Action includes provisions for various developments and land treatments. These range developments would improve livestock distribution thereby providing better utilization and reducing the amount of overused and underused range (Valentine, 1971).

Table 2-7 lists the projects by allotments. From a vegetation standpoint, the most important of these are vegetation manipulation. These treatments would alter vegetation types, increase forage condition, and maximize grass and forb production by decreasing the brush on 13,280 acres. Range reseeding would be scheduled for areas in poor and fair ecological condition that may also be lower natural production potential. Areas too heavily populated with brush, with a good grass and forb understory, would be schedule for brush control to release the understory.

Treatment would only be done on those sites that have potential for successful revegetation.

Generally, vegetation treatments would have a high short-term negative impact. Manipulated areas would require between 1 and 3 years rest to allow the treatment to take effect and new seedlings to establish. Permittees licensed for these treated areas would be required to take enough non-use to provide the necessary rest. However, in the long-term, the negative effect would decline as the treated areas become established.

The three proposed methods of vegetation manipulation, prescribed burning, spraying, and plowing, have markedly different effects.

Prescribed burning in dense stands of sagebrush can increase grass and forb availability by 75-98 percent. The majority of desirable forage plants found in the EIS area are not susceptible to damage by fire with the exception of Idaho fescue, curlleaf mountain mahogany, and bitterbrush (Valentine, 1971).

The effects of chemical spraying can vary with range condition. Spraying 2,4-D on fair conditon range has resulted in 98 percent sagebrush kill while the same treatment on poor condition range has resulted in 85 percent kill. Production of forage on these sites increased 2.5 times and 4.0 times respectively (Valentine, 1971).

Treatment with the brushland plow will remove 90-95 percent of the brush, however, this method also removes nearly all herbaceous vegetation (Valentine, 1971). Therefore, plowing must be accompanied by reseeding.

In an indirect way, structural developments (fences and water developments) would also contribute to the rise in productivity because these developments are needed to implement the grazing systems discussed. Structural developments listed in Table 2-7 would have adverse impacts on vegetation on the construction site. Most of these impacts would be short-term and all would be minor when compared to the gains achieved by improved livestock distribution.

AUMs are projected to increase over a 20-year period from 26,689 AUMs to 35,016 AUMs resulting from land treatments and grazing management. This represents a 31 percent (8,327 AUMs) increase over current production.

Wildlife

Terrestrial

Wildlife populations fluctuate according to a variety of environmental factors including quantity and quality of food, water, and cover; climatic conditions; disease; social interactions; predation; and human activities. The total impact to wildlife populations would be a function of the interrelationships of the various environmental and biological factors as they may be altered by the Proposed Action.

Many of the animals in the EIS area are seasonal inhabitants. Thus the Proposed Action may affect only a portion of their life cycle. Also, many species would be affected as a group such as ground nesting birds. The following discussions relate only to a specific significant species or group of species.

An adverse impact to terrestrial wildlife is defined as any change which reduces population size below the existing carrying capacity of the habitat, increases population size above carrying capacity, or reduces existing carrying capacity. A beneficial impact is defined as any change which restores depleted or oversized populations to carrying capacity or which increases carry capacity for the species being considered.

Forage Allocation

As shown on Table 2-3, 2,751 AUMs of forage is allocated to wildlife. This allocation is sufficient to support 1,200 antelope, 4,240 mule deer, 446 elk, and 349 bighorn sheep which are the anticipated population levels in 1985.

Twenty years of the Proposed Action theoretically could result in the following big game population increases over the No Change Alternative: deer 500 (up 10 percent), elk 100 (up 20 percent), antelope 200 (up 17 percent), bighorn sheep 100 (up 20 percent).

The allocation of forage would benefit most terrestrial species by adjusting grazing use to carrying capacity throughout the EIS area. The proposed livestock reductions should provide additional forage for wildlife in those allotments receiving the reductions. The additional forage should result in decreased stress for all species dependent upon terrestrial vegetation for food and cover. Mortality and displacement should be less and carrying capacity should be higher because fewer livestock would reduce competition for forage and cover.

Grazing Management

Grazing systems would have both beneficial and adverse impacts on wildlife.

1. Rest Rotation

Under rest rotation grazing systems, allotments would be stocked according to the carrying capacity of the entire allotment. Thus, grazed pastures would receive greater than 50 percent livestock forage utilization to compensate for rested pastures. Therefore, wildlife in the grazed pastures would experience increased competition for food, water, cover, and space from livestock. There would be no livestock competition in rested pastures.

Rest-rotation grazing systems would be expected to improve rangeland condition (see Vegetation/Livestock Grazing Section). Long-term increases in grass and forb production with possible reductions in shrub production are expected under this system. Wildlife species composition and use could be altered according to changes in vegetation composition. The degree of impact would depend on stress tolerance of the species, degree of vegetation changes, and the availability of adjacent habitats to absorb displaced species. No measurable changes are anticipated in total species diversity or biomass throughout the EIS area as a result of grazing systems. However, wildlife species composition and extent of use should change in site specific areas.

Some antelope would be displaced which could create competition for fawning, bedding, and space with the animals normally using the ungrazed pastures. The antelope remaining in the grazed pastures could sustain greater fawn predation due to less cover; however, the increase would probably not be significant. Two allotments (4508 and 4511) are both less than 5,500 acres in size which means the pastures (in a three pasture system) would be less than three square miles in size. The fencing required for rest-rotation systems, particularly in these small allotments, would restrict movement and be hazardous to antelope.

The mule deer utilizing the use pastures during the winter, would have to increase their intake of brush, primarily sagebrush, to offset the forage volume loss of residual grass. Greater than 20 to 30 percent intake of sagebrush is harmful to deer as is the loss of much needed forage variety.

Virtually all elk use in the EIS area occurs in winter/spring. The rested pastures would provide adequate forage for wintering elk. Late use pastures would likely have little residual grass as a result of greater than 50 percent utilization by cattle. Skovlin et. al. (1968 and 1976) estimated that 50+ percent forage utilization by livestock resulted in a 60 percent or greater reduction in elk use.

Of the 12 allotments containing elk, only four (4401, 4406, 4507, and 4516) are not scheduled for rest-rotation grazing systems.

Rest-rotation effects on bighorn sheep have not been critically assessed in the literature. It is assumed bighorn reaction or response would be similar to that of deer and elk. However, use area overlap between bighorn and livestock is not as complete as between livestock and the other two species.

Effects of the Morgan Creek rest-rotation system are not clear with regard to bighorn. Nearly 1,000 surplus cattle AUMs are being produced and it is felt this masks or precludes forage deficiencies in use pastures that would likely occur without the surplus.

In spite of the adverse effects of rest-rotation systems on deer, elk and presumably bighorn sheep, these species show a preference for deferred or rotation systems over moderate to heavy season-long grazing (Skovlin et. al. 1968; Witinger, W. 1978).

From an allotment standpoint there should be adequate forage for the bighorn sheep. There are no data available to indicate any beneficial or adverse impacts from rest-rotation grazing systems. Improvement of range condition in areas adjacent to current sheep range may encourage additional "pioneering" by the bighorn in the Cronks Canyon area.

The Proposed Action would benefit Hungarian partridge, chukar partridge, mourning doves, and cottontail and pygmy rabbits. Improved livestock management, improved rangeland condition, periodic rest from grazing, and water developments would improve habitat condition for these species. Rest rotation grazing systems would concentrate livestock use in sage grouse nesting and brood rearing habitat during the crucial brood rearing period. Increased mortality from stress and nest desertion would occur in the grazed areas, but production could be higher in the rested areas than under the present situation. Riparian areas are highly preferred by sage grouse for brood rearing. Proposed rest-rotation would provide periodic rest of the riparian vegetation. Increased forage and cover on these areas would enhance sage grouse habitat during the rest treatment. Production could be high in the short-term, carrying capacity should increase, and populations would respond by increased brood survival.

Non-game wildlife depend on vegetation for cover, and many species utilize vegetation for forage. Early spring and concentrated livestock grazing use under rest-rotation systems would result in reduced cover and forage for non-game species. Physical disturbance would occur in livestock use areas. Non-game species with small home ranges would be more severely impacted than mobile species. Rested areas would provide non-competitive habitat.

The increases in herbaceous vegetation would result in increased rodent and rabbit populations, thus, birds of prey would benefit.

2. Deferred Rotation

The impacts to mule deer, upland game, and non-game species would be similar to those of rest rotation.

Deferred rotation systems would result in fewer adverse impacts to antelope than rest rotation. Competition for forage, space, and cover would be intense when livestock are present, but after livestock are removed, sufficient forage should remain to support present antelope populations. Interaction with livestock would cause some displacement of fawns and lactating does. The degree of displacement is influenced by the amount and kind of livestock involved. Campbell (1970) found that antelope withdrew from Montana range used by sheep but shared range with cattle.

Deferred systems are proposed for two of the nine allotments having elk. Livestock should make about 50 percent of their use in the early pasture and 50 percent in the late pasture. The remaining forage would be for elk. Elk use of the late pasture could be reduced because elk prefer to use ungrazed plants (Skovlin et. al. 1968, Hudson et. al. 1976).

Bighorn sheep use three allotments (4518, 4519, and 4520) proposed for deferred rotation. This use is still in a developmental stage as a result of the rapidly increasing Mt. Borah herd. It is premature to speculate on impacts until the bighorns develop more consistent use patterns.

3. Seasonal

Seasonal grazing would have the least adverse effects on antelope when livestock use occurs between June 15 and October 1. Competition for spring forbs and stress on lactating does and their fawns would be precluded with a June 15 turnout date. Seasonal grazing would not improve the forage base for antelope.

Seasonal grazing between June 1 and the end of October would have little influence on winter/spring deer use. Most deer occupy higher ranges between these dates. Livestock use outside of these dates would cause conflicts with space and forage. This could cause some temporary abandonment of areas by deer.

Season of Use

Use of the range by livestock during particular seasons of wildlife use can have a detrimental effect on wildlife.

Big game species, for the most part, can tolerate very little competition for forage, cover and space during birth and raising of young.

Generally, livestock use of rangeland between June 15 and October 31 has little or no effect on behavior of game animals and birds.

Competition for forage puts a strain on lactating antelope does and their fawns. Deer and elk when forced to compete with livestock for space and forage will abandon an area at least temporarily.

Sage grouse nesting occurs from mid-April to early June. Sage grouse hens sometimes abandon their nests during egg laying and incubation if disturbed. Livestock use prior to June 15 could result in disturbance of nesting hens and/or trampling of nests, thus, reducing nesting success.

Vegetation Manipulation

Chaining would provide limited kill of sagebrush thereby retaining brush as a viable component of the post-treatment vegetation. The amount of sagebrush reduction cannot be estimated until site specific project data (height and density of sagebrush, control timing, single verses double chaining etc.) are known. Chaining ranks with plowing insofar as pattern control to maximize edge effect is concerned.

Plowing would be terminal for brush on treated areas. Without post-treatment seeding which includes browse species in the seed mixture, brush establishment would be dependent on invasion from untreated areas which is a very slow process. Plowing without a follow-up mixture seeding would create a grass monotype. This reduction in vegetation diversity would result in less wildlife diversity.

Burning under exactly the right conditions should maximize edge effect, improve quality and quantity of grass and forbs, and retain islands and fingers of brush cover. Burning can be the least controllable treatment method. The precision with which burns are conducted will dictate what benefits will accrue to wildlife.

Aerial chemical treatment would be difficult to do and still meet objectives and vegetation manipulation restrictions set forth in the Proposed Action. Chemical application would greatly reduce brush and forb species creating essentially a grass monoculture. Many wildlife species are dependent on sagebrush for cover and sagebrush and forbs for food. Aerial spraying is not precise; therefore, maximizing edge effect would be quite difficult.

Seedings would be conducted in conjunction with some of the above treatments. A mixture seeding of grass, forbs, and shrubs may greatly enhance treatment areas for wildlife and would certainly help reduce or possibly eliminate detrimental impacts of treatment.

Properly designed and executed vegetation manipulations would benefit wildife over the long-term. Vegetation manipulation maintenance is an exception in that these areas would become essentially grass monocultures.

If the restrictions on vegetation manipulations stated in the Proposed Action are followed and a balanced seed mixture is used in all seedings, the vegetational manipulations should be significantly beneficial to antelope. Most of the antelope range is deficient in forbs and a considerable acreage has an excessive density and/or height of sagebrush for optimum antelope range (Yoakum, personal communication 1974).

Virtually all of the proposed vegetation manipulation will occur in areas seldom used by deer or in areas which are primarily spring deer use. Manipulations on spring use areas should be of benefit to deer due to the grass and forb production anticipated on these sites.

Impacts to sage grouse from vegetation manipulation would depend on the percent kill of brush and the location and distribution of undisturbed areas. Carrying capacity, degree of stress, and displacement of grouse are subsequently influenced. Adherence to restrictions on vegetation manipulation listed in the Proposed Action should eliminate all major problems. Properly done, much of the manipulation may prove of considerable benefit to sage grouse.

Manipulation should create a more diverse habitat system thereby benefiting many non-game species. Disturbance and/or destruction of the more sedentary species will occur during manipulation.

Water Development

Water developments would improve habitat where water is lacking. Leaving water systems functioning in key areas throughout the dry season would enhance wildlife distribution for many species. Creation of seeps or wet areas off of water systems and fencing selected ones would provide excellent habitat for many birds and mammals.

Water development would enhance spring/summer antelope habitat in areas currently having less than optimum water distribution. To fully realize benefits, a few key developments would have to have water in them even when livestock are not present.

Water developments are not anticipated to have any significant influence on deer, elk, or bighorn sheep use.

Fencing

Regardless of how carefully fences are located and special design features are used in construction, fences still pose problems for larger wildlife species. The design options stated in the Proposed Action should minimize adverse impacts.

Mortality of deer, antelope, bighorn sheep, and elk migration problems can be expected to increase with construction of additional fences.

Aquatic

Fencing the 5.3 miles of Burnt Creek which are in poor condition would provide beneficial impacts to the stream by the removal of cattle from the riparian zone. It is expected that the 5.3 miles of Burnt Creek would improve from its present fair-poor condition to excellent-good condition within 20 years. With the establishment of a rest-rotation grazing system in the Upper Pahsimeroi Allotment, the 2.25 miles of Mahogany Creek in fair-poor condition would improve to good-fair condition. Elevation is a major limiting factor for improvement of this stream.

Cultural Resources

Impacts to prehistoric and cultural resources can be defined as any disturbances that change sites from their original physical condition or location. Such disturbances are permanent and irreversible and constitute an irreplaceable loss of information in a site.

The extent of impact to cultural resources in the EIS Area is difficult to predict with precision, since these impacts are not easily quantifiable and depend on two variable factors: the physical attributes and location of a site and the nature and intensity of disturbance.

Under the Proposed Action, cultural resource clearance would still be required for all projects. Environmental assessments would continue to be written and identified sites would be protected through mitigating measures. New projects would be implemented and/or developed on 11,150 acres (3 percent of the area). This would possibly uncover presently unknown cultural resources. However, the possibility would exist that some damage could inadvertently occur to undiscovered artifacts and sites during installation and/or implementation. In addition, these cultural resources would receive impact by livestock use through trampling and resulting soil erosion. The damage would likely result from livestock concentrations near developments but outside areas examined in the site specific cultural resource inventory that preceeds project development.

In the short-term, since fewer cattle than are now present will graze on most of the allotments, overall impacts from livestock use will decrease slightly for a short period until the livestock numbers are increased as a result of increased forage. However, long-term goals for cattle numbers would be higher than present levels. Therefore, effects to cultural resources would increase both in number and intensity.

Implementation of the proposed grazing systems would increase livestock distribution and use intensity on 249,828 acres (67 percent of the area), thus exposing more sites to trampling damage. At the same time certain unknown sites now suffering from trampling damage would receive less intensive damage due to more diffused livestock distribution in an allotment.

Since the Proposed Action calls for a number of developments and since these developments would aid cattle distribution, the potential for damage to a particular cultural resource would be increased. However, less intense damage to sites presently being impacted could result from the more scattered livestock distribution.

The accelerated schedule of implementation might not allow adequate time for potential finds to be located, recorded, studied, and protected. Implementation could however be expected to produce some benefits to cultural

resources. The intensive cultural resource inventory conducted prior to project construction would doubtless yield currently undiscovered sites adding to the resource's data base. Enlarging fences around springheads to include cultural resource sites would be a beneficial result of project construction.

Visual Resources

The EIS area has been divided into VRM Classes (I through V). The VRM classes are used to help form objectives for enhancement, rehabilitation and protection. The BLM 8400 Manual explains in detail the objectives and management of the different VRM Classes. Since the management criteria will be followed for each specific VRM class and actual location of projects have not been identified, this section will address the types of impacts created by projects. Visual contrast ratings will be conducted for projects to evaluate the impacts for the project.

Changes in livestock numbers, distribution, and intensity of use resulting from forage allocation and grazing systems would have a few effects on visual resources. Some negative effects would occur such as accentuation of fenceline contrasts, cattle trails, and other livestock related impacts. Therefore visual resources would be affected mainly by the numbers and locations of the following proposed range improvements and developments:

Fences

Fences usually extend for distances of at least a quarter mile and tend to destroy expanses. Secondary effects of fences would be livestock trailing and differences in vegetative use on either side of the fence. This creates a blocked form of the vegetation features and angular lines created by fenceline contrasts. These long-term impacts would result in deteriorated "open range" impressions that now exist in the EIS area.

Short-term impacts would be disturbance to vegetation during and shortly after construction. This would affect 83 acres of the EIS area. About this same acreage would be affected in the long-term due to livestock trailing and fenceline contrasts created by differences in use.

Water Troughs

Cattle tend to congregate around troughs, eliminating the surrounding vegetation. This would affect 89 acres of the EIS area.

Reservoirs

Reservoirs would be more of a natural part of the landscape. Short-term impacts resulting from the removal of vegetation to construct the dam would occur on 30 acres. As the areas become revegetated the construction impacts would disappear but would be replaced by the effects of cattle trampling vegetation. These would be long-term impacts to approximately the same acreage.

Pipelines

Some short-term impacts to the line of the land surface features would occur to 128 acres when the pipelines are laid. These would involve disruption of the soil surface and removal of vegetation. However, as soon as the line revegetates the impacts would disappear.

Vegetation Manipulation

The impacts created by new vegetation manipulation would result in changes to the vegetative features of the landscape on 10,820 acres. The removal of vegetation would have moderate to strong contrasts to the form, line, color, and features elements in the short-term. As the areas revegetate the contrasts would lessen until the manipulations lose their significance.

In summary, the number of acres which would be affected visually by range improvements would be 11,093 (3 percent) in the short-term and 11,008 (3 percent) in the long-term.

Recreation

Recreational opportunities in the EIS area affected by the Proposed Action are hunting, fishing and sightseeing. Results of the Proposed Action would affect the quantity and quality of opportunities for hunting and fishing. Sightseeing would be affected by the changes in quality of existing opportunities.

Increases in recreational hunting and fishing opportunities would be directly related to any increase in wildlife numbers. It should be noted that increases in wildlife numbers may be absorbed by the increase in hunters. Bag limits, length of season, number of permits, etc. would be controlled by the Idaho Fish and Game Department.

Forage Allocation

Hunting opportunities would increase as a result of increases in wildlife numbers resulting from the Proposed Action forage allocation for wildlife and the balancing of livestock numbers with range carrying capacity. The Proposed Action population increases could allow an increase in the number of permits available to hunters of antelope and possibly bighorn sheep. At present there are no elk hunts which require permits on public lands in the EIS area. Although the Proposed Action would supplement numbers on Forest Service lands, BLM lands would experience no effect in recreational elk use. Deer hunts are open in the EIS area (no permits are required). The Proposed Action forage allocation would result in more deer available to hunters.

The quality of non-consumptive recreational activities (sightseeing, bird watching, etc.) would increase from a better balance of the wildlife, livestock, and vegetation resource.

Grazing Management

Results of grazing systems would affect the distribution of wildlife, causing shifts in recreational activity. In pastures which are rested, increased wildlife activity would be expected. The effects of the grazing systems on the increased productivity of the range are another factor which allows an increase in game populations resulting in increased hunter and non-consumptive opportunities. Fences required for grazing systems would impact wildlife populations on winter and spring ranges particularly and would affect hunter and non-hunter movement through the area.

Range Developments

Range developments leading to an upgrading of vegetative condition, dispersal of livestock which would relieve grazing pressure on riparian zones, and the development of water available to game would enhance wildlife populations and therefore hunting and nonconsumptive opportunities involving wildlife. The possibility of extending sage grouse seasons and bag limits may exist. However, increased numbers of hunters might absorb the increase in the bird population.

Fishing opportunities in general would not be affected by the Proposed Action except in the case of Burnt Creek and Mahogany Creek. At these sites fishery opportunities would be expeced to increase with the protection of Burnt Creek by four miles of fence and the initiation of a grazing system in the Mahogany Creek area.

Fences would affect receational use of land as mentioned above. However, this might enhance the quality of the recreational use of the areas by limiting the number of vehicles driving through the area.

As discussed under Visual Resources, the quality of recreational sightseeing might be negatively affected by the various range improvements.

Economics

Rancher Income

Impacts to rancher income have been estimated with ranch budgeting and linear programming technique. These methods are described in Appendix E.

In the short-term there would be an annual income gain of $1,000 as a result of group 1 getting an 8 percent reduction from average use and group 3 getting a 9 percent increase (see Table 4-5). Overall there would be 17 permittees receiving AUM decreases, 19 permittees receiving increases, and 9 permittees experiencing no change. Among the 17 permittees receiving decreases the average reduction is 18 percent and 81 AUMs. The percentage reductions vary from 1 percent to 50 percent. AUM reductions vary from 2 to 407.

Table 4-5

Short Term Economic Impacts

Group	1	2	3	4	5	6	Total
Description	0-299 head Spring-Fall	0-299 head Spr-Su-Fa	All Sizes Spring Only	300+ Spr-Su-Fa	300+ Spr-Fa	All Sizes Sheep	
Number of Permittees	16	9	5	7	5	6	(1)44
Active Preference	4,416	3,039	877	10,732	5,726	3,189	27,979
Average Use	4,529	2,854	794	10,091	5,306	2,951	26,525
Proposed Action							
Proposed Use	4,166	2,873	864	10,474	5,123	3,189	26,689
% Change from Active	-6	-5	-1	-2	-11	0	-5
% Change from Average	-8	+1	+9	+4	-3	+8	+1
Annual Income Change	-$6,874	+$158	+$153	+$2,083	-$408	+$6,192	+$988
Alternative 1							
Proposed Use	4,529	2,854	794	10,091	5,306	2,951	26,525
% Change from Active	0	0	0	0	0	0	0
% Change from Average	0	0	0	0	0	0	0
Annual Income Change	$0	$0	$0	$0	$0	$0	$0
Alternative 2							
Proposed Use	4,529	2,854	794	10,091	5,306	2,951	26,525
% Change from Active	0	0	0	0	0	0	0
% Change from Average	0	0	0	0	0	0	0
Annual Income Change	0	0	0	0	0	0	0

Table 4-5 (cont.)

Short Term Impacts

Group	1	2	3	4	5	6	Total
Alternative 3							
Proposed Use	0	0	0	0	0	0	0
% Change from Active	-100	-100	-100	-100	-100	-100	-100
% Change from Average	-100	-100	-100	-100	-100	-100	-100
Annual Income Change	-$46,816	-$59,913	-$9,470	-$187,796	-$13,835	-$78,642	-$396,472
Alternative 4							
Proposed Use	4,166	2,873	864	10,474	5,123	3,189	26,689
% Change from Active	-6	-5	-1	-2	-11	0	-5
% Change from Average	-8	+1	+9	+4	-3	+8	+1
Annual Income Change	-$6,874	+$158	+$153	+$2,083	-$408	+$6,192	+$988
Alternative 5							
Proposed Use	3,488	2,228	649	9,385	4,207	2,821	27,778
% Change from Active	-21	-27	-26	-13	-27	-21	-19
% Change from Average	-23	-22	-18	-7	-21	-4	-14
Annual Insome Change	-$14,831	-$7,395	-$1,643	-$7,139	-$2,872	-$3,115	-$36,995

(1) 4 permittees have both cattle and sheep AUMS

Table 4-6

Long Term Economic Impacts

Group	1	2	3	4	5	6	Total
Description	0-299 head Spring-Fall	0-299 head Spr-Su-Fa	All Sizes Spring Only	300+ Spr-Su-Fa	300+ Spr-Fa	All Sizes Sheep	
Number of Permittees	16	9	5	7	5	6	(1)44
Active Preference	4,416	3,039	877	10,732	5,726	3,189	27,979
Average Use	4,529	2,854	794	10,091	5,306	2,951	26,525
Proposed Action							
Proposed Use	5,893	3,192	983	14,274	6,556	4,119	35,017
% Change from Active	+33	+5	+12	+33	+15	+29	+25
% Change from Average	+30	+12	+24	+41	+24	+40	+32
Annual Income Change	(2)$0	+$1,896	+$216	+$21,161	+$2,768	+$31,296	+$57,337
Alternative 1							
Proposed Use	4,529	2,854	794	10,091	5,306	2,951	26,525
% Change from Active	0	0	0	0	0	0	0
% Change from Average	0	0	0	0	0	0	0
Annual Income Change	$0	$0	$0	$0	$0	$0	$0
Alternative 2							
Proposed Use	5,893	3,192	983	14,274	6,556	4,119	35,017
% Change from Active	+33	+5	+12	+33	+15	+29	+25
% Change from Average	+30	+12	+24	+41	+24	+40	+32
Annual Income Change	(2)$0	+$1,896	+$216	+$21,161	+$2,768	+$31,296	+$57,337

Table 4-6 (cont.)

Long Term Impacts

Group	1	2	3	4	5	6	Total
Alternative 3							
Proposed Use	0	0	0	0	0	0	0
% Change from Active	-100	-100	-100	-100	-100	-100	-100
% Change from Average	-100	-100	-100	-100	-100	-100	-100
Annual Income Change	-$46,816	-$59,913	-$9,470	-$187,796	+$13,835	+$78,642	-$396,472
Alternative 4							
Proposed Use	4,872	2,639	813	11,802	5,420	3,406	28,952
% Change from Active	+10	-13	-7	+10	-5	+7	+3
% Change from Average	+8	-8	+2	+17	+2	+15	+9
Annual Income Change	$0	-$4,032	+$80	+$8,774	+$230	+$11,736	+$16,788
Alternative 5							
Proposed Use	4,416	3,039	887	10,732	5,726	3,189	27,979
%Change from Active	0	0	0	0	0	0	0
% Change from Average	-2	+10	+10	+6	+8	+8	+6
Annual Income Change	-$1,718	+$1,422	+$170	+$3,125	+$923	+$6,192	+$10,328

(1) 4 permittees have both cattle and sheep AUMs.

(2) Utilization of AUM increases by Group 1 would result in an income loss (due to year-round feed requirements) so it is assumed they would be used.

In the long-term there would be an annual income gain of $57,000. The long-term is defined as that period following implementation of range improvements, land treatments, and grazing systems (year 6 and beyond). AUM changes in the long-term vary from an increase of 12 percent in group 2 to an increase of 41 percent in group 4 (see Table 4-6).

Range Improvements

Approximately $618,000 would be spent on range improvements and land treatments. It is estimated that $110,000 of that would be spent locally (Custer and Lemhi Counties). Maintenance of these improvements would cost $37,000 annually with roughly $22,000 being spent locally.

Recreation-Related Income

The Proposed Action would not impact recreation-related income in the two-county area.

Secondary Income Impacts

When income is increased (or decreased) in one sector of the economy, income increases (or decreases) in other sectors as well. This is due to the interdependencies among industries (buying and selling of goods to one another) and is known as the multiplier effect. Secondary income changes are estimated through the use of multipliers. The economic model and multipliers used to estimte this impact are described in Appendix E.

Direct income changes in the livestock and construction (range improvements) sectors of the economy create secondary impacts to the regional (Custer and Lemhi Counties) economy. In the short-term the secondary changes would amount to an annual income gain of $900. In the long-term it would amount to an annual income gain of $17,000.

Employment

Income changes in the livestock and construction sectors can lead to changes in employment levels in these and other sectors of the economy (through the multiplier effect). The economic model used to estimate these changes is explained in Appendix E.

In the short-term there would be an increase of two jobs. In the long-term this would change to an increase of eight jobs.

Ranch Consolidation and Conversion

There would be no impact to ranch consolidation and conversion due to the Proposed Action.

Capital Position

The Proposed Action would improve the capital position of those ranchers receiving increases in excess of their active preference. There would be 12 permittees receiving increases in active preference, 15 receiving no change, and 17 receiving decreases in active preference. In the long-term all permittees would be receiving an increase or no change (24 increases, 20 no change).

Summary

Rancher income would increase $1,000 in the short-term and by $57,000 in the long-term. $618,000 would be spent on range improvements with $110,000 being spent locally. Annual maintenance costs would be $37,000 with $22,000 spent locally. Secondary impacts would increase income by $900 in the short-term and $17,000 in the long-term. Employment would increase by two jobs in the short-term and eight jobs in the long-term. There would be no impact on ranch consolidation. Capital position would be improved for 12 permittees, unchanged for 15, and worsened for 17. The regional net present worth would be $730,000 (net present worth is explained in Appendix E).

Social Conditions

Multiple use of public lands threatens ranchers' feelings of independence and their historic use of public lands. Changes in management required to implement AMPs further threaten independence as well as traditional methods of operations. Changes in stocking rates could cause economic losses for some, both in ranch income and ability to borrow money. However, there are also operators who could experience economic gains as well.

The Proposed Action could cause a temporary and/or permanent change in the sense of social well-being of many of the permittees. However, the exact impact of these changes on each operator would depend on the extent to which each one depends upon his/her livestock for an income. For some, their livestock operations are a hobby or supplement an income that is based mainly on another profession. Others rely either entirely or heavily upon their livestock production for an income.

Since information is not available as to how many of the permittees fit into which categories, only generalization and speculations can be made. With this in mind, the Proposed Action could result in short-term and/or long-term changes to most of the permittees. Many of the 17 receiving AUM decreases could initially experience reduction in their sense of well-being, while many of the 19 receiving AUM increases could intitially and in the long-term have positive impacts to their well-being. Nine operators would experience no change. Most all would have increases in the long-term of their social conditions.

Alternative 1 - No-Change

Soil-Water Resources

Alternative 1 would result in a slight to moderate improvement on 155,759 acres (42% of the EIS area) with little or no improvement in erosion condition on the remainder of the acreage. Therefore, the results of this alternative would not be significantly different than the Proposed Action.

There would be little or no deterioration of erosion conditons in any of the allotments. Over the 20 year period there would be surface disturbance on 99 acres due to construction of facilities and 3,246 acres due to vegetation manipulation projects.

Stream channel stability conditions remain unchanged from the present. Refer to Tables 4-1, 4-2, and 4-3 for additional details.

Vegetation/Livestock Grazing

Forage Allocation

Retaining stocking rates at the current level 27,979 AUMs, without intensifying management will result in a continuation of existing trend.

This level of grazing use has been made since 1959 resulting in only 17 percent poor condition range and two allotments where all trend studies showed downward trend. With the increased management systems and facilities described below, vegetative production would increase 3 percent in 20 years (28,818 AUMs).

Grazing Management

Fifteen new grazing systems would be implemented; 8 deferred-rotation (89,353 acres), 7 rest-rotation (78,184 acres), and 18 remaining seasonal (204,768 acres).

The same factors apply for this alternative as stated in the analysis of the Proposed Action.

Range Developments

Range improvement projects will be initiated based on the historical rate of progress; about 30 percent of the Proposed Action inprovements. The result, after 20 years will be: 25 miles of pipeline, 27 troughs, 9 reservoirs, 21 miles of fence, and 3,246 acres of vegetation manipulation.

In the long-term (20 years), it is expected that about 80 percent of the Proposed Action objectives will be met under this alternative.

Wildlife

Terrestrial

This alternative would not allow Proposed Action wildlife objectives to be met. The present allocation of 27,979 AUMs to livestock would not change in the short-term. No allocations would be made now or in the future for wildlife.

In spite of this, deer would probably increase to 5,000, elk to 500, and bighorn sheep to 500. This amounts to increases over 1985 figures of 25 percent, 15 percent, and 43 percent respectively for deer, elk, and bighorn. Antelope are not anticipated to increase over 1985 population levels under this alternative.

Aquatic

Fencing of 5.3 miles of Burnt Creek would be a high priority for improved grazing management. As a result 5.3 miles of Burnt Creek would improve from the present fair-poor condition to an excellent-good condition in 20 years. This is similar to the Proposed Action but on a longer time frame.

Neither the number of livestock nor the present seasonal use would change on the allotment involving Mahogany Creek. Therefore the 2.25 miles of Mahogany Creek identified as fair-poor condition would remain the same.

Cultural Resources

At present, cultural resources not protected or mitigated in the EIS area are being damaged or destroyed at a steady rate. Such damage is cumulative and permanent.

Environmental assessments would continue to be written and identified sites would be protected through mitigating measures. However, the possibility would exist that some damage could inadvertently occur to undiscovered artifacts and sites during installation. Approximately 30 percent of the Proposed Action range developments/improvements would be implemented over 20 years under the No Change Alternative resulting in 3,345 acres of new disturbance or less than 1 percent of the EIS area.

Under the No Change Alternative, unidentified sites would continue to be damaged or destroyed by livestock at the present rate. This disturbance would continue at present levels in intensity and amount of the area receiving use. On the two allotments which currently have rest-rotation grazing systems (63,138 acres or 17 percent of the area) impacts due to intensive livestock use and wide distribution of livestock over each pasture would continue to damage sites and artifacts at the present rate. These areas with systems would have greater damage occurring from trampling, erosion, etc. than the 31 allotments (309,168 acres or 83 percent of the area) which would have seasonal grazing.

The archaeological surveys which routinely accompany the assessment of each proposed project would possibly uncover cultural resources that would go undiscovered without project proposals.

Visual Resources

Visual resources would continue as they are in their present state. Current fenceline contrasts created by livestock use patterns would continue. No changes in VRM classes would occur. A small percentage of the area would have added visual impacts resulting from range developments/improvements.

Since approximately 3,345 acres would be disturbed over the next 20 years by various projects, an approximate increase in visual impacts of less than 1 percent of the EIS area would occur.

Recreation

Alternative 1 would still result in increases in recreational opportunities related to wildlife even though it is a No Change situation. However, these increases would be less than the levels of the Proposed Action.

With respect to specific species, recreational opportunities relating to deer, elk, and bighorn sheep would increase. However, antelope related activities would remain at present levels. Populations of bighorns would be expcted to increase the most. Therefore, recreational opportunities related to this species would increase the most. Because of the nature of these animals, the opportunity to site one is highly valued.

Sightseeing opportunities would increase as related to wildlife sighting opportunities. No change in other sightseeing opportunities would be expected.

Economics

This alternative describes the existing situation and as such would have no economic impact. The change in regional net present worth of this alternative would be $0.

Social Conditions

Alternative 1 is a continuation of the existing situation and would have no measurable effects on the social systems of the study area.

Alternative 2 - Prolonged Change

Soil-Water Resources

The prolonged change alternative would result in a slight to moderate improvement in erosion condition in the resource area. Changes in erosion conditions would take 20 years to reach the conditions achieved by the Proposed Action in 5 years. Gully lengths would decrease 10-20 percent on 155,759 acres. There would be little or no change on the remaining acres. Stream channel stability conditions would also improve in 20 years to conditions reached in the Proposed Action in 5 years.

Therefore, the results of Alternative 2 would be similar to the situation reached if programs were to continue at the present rate (Alternative 1).

Vegetation/Livestock Grazing

Forage Allocation

Continuation of current grazing use, when accompanied by increased management, should result in overall improvement of range condition and trend.

At the end of 20 years, all range improvement projects and grazing systems proposed would be completed. It is expected that the long-term results of this alternative would be greater than those discussed in Alternative 1, but less than the results of the Proposed Action.

Twenty years after implementation, vegetative production would be at least 17 percent higher than the initial stocking rate. There would be 4,756 additional AUMs available for livestock grazing. The long-term forage allocation for livestock would be 32,735 AUMs. This equates to 14 percent greater production (long-term) than under Alternative 1.

As discussed under Alternative 1, this level of grazing pressure has been made since 1959, with only minimum management, resulting in few adverse consequences.

Grazing Management

As discussed under the analysis of the Proposed Action, 25 allotments would be placed under intensive management. However, implementation under this alternative would be over a 20 year period. As a result, the proposed objectives would not be met completely. At the end of 20 years, about 95 percent of the objectives would be met.

Range Developments

All proposed projects would be constructed during a 20 year period. Most of these projects would be necessary to make the proposed grazing systems function properly. As discussed above, implementation over 20 years would cause a short-fall of proposed objectives.

Wildlife

Terrestrial

This alternative is essentially similar to Alternative 1 except for additional range improvement projects.

The similarity is so great between these alternatives that quantifiable impact differences with regard to wildlife are unnecessary and impractical to determine.

Thirteen allotments are currenty over-obligated in forage resources, a condition which would affect wildlife population goals. The longer this over-obligation exists, the more intense the problem would become.

Although proposed range improvements and grazing systems would be installed and implemented, the long time frame would delay benefits to wildlife. This situation would compound the effects of the forage over-obligation. The resulting continued general decline in range conditions would reduce the quality and quantity of habitat for most wildlife species and would intensify competition with livestock for forage.

Aquatic

Since Burnt Creek would be fenced under this alternative, the resulting impacts would be the same as those mentioned in the Proposed Action. However, since the time frame for improvements is 20 years, fisheries improvement would be slower than the Proposed Action. Mahogany Creek would also improve in condition except over a longer time frame.

Cultural Resources

Under the Prolonged Change Alternative, 11,150 acres (3 percent) of the EIS area would have cultural resource impacts within the next 20 years due to project development and installament. This is in addition to the acreage presently affected which includes 2,460 acres of vegetation manipulation that has been done in the past and would be maintained. These impacts could be either adverse or beneficial depending on the situation as explained in the Proposed Action.

With respect to grazing systems, 249,828 acres (67 percent of the EIS area) would receive an increase in cattle use intensity and would have wider use patterns over the next 20 years. On 122,478 acres (33 percent of the area) present levels of cultural resource damage would continue. However, increases in AUMs over 20 years would mean either more cattle or longer periods of use as compared to the No Change Alternative. Both cases would result in increased cultural resources damage by trampling and erosion.

The initial reduction in AUMs would not help resources already destroyed but would reduce the disturbance to unknown cultural resources.

Visual Resources

The same number and areas of visual effects totaling 11,093 acres identified in the Proposed Action would occur under this alternative. However, since Alternative 2 deals with a 20-year time frame, the impacts would be spread over a longer period of time than the Proposed Action. As a result, at any one point in time, fewer visual effects would exist.

End results in the long-term would be the same as the Proposed Action. On the other hand, total resource short-term consequences would be less under Alternative 2 since the visual effects would be spread over a 20-year period.

Recreation

Recreational opportunities relating to hunting would not reach Proposed Action expected levels for at least 20 years. Since more cattle would initially be on the range than in the Proposed Action, vegetation resources and livestock resources would not be balanced and therefore wildlife populations would not have the opportunity to increase as they would under the more balanced Proposed Action.

Since projected increases in wildlife population levels and forage would take place over a 20-year span instead of the 5-year span, wildlife supply might not meet hunter demand.

Range improvement projects would have the same results as those listed in the Proposed Action but effects would occur over a longer time period.

Economics

Rancher Income

Rancher income would be unchanged in the short-term. In the long-term income would gradually increase as range improvements are installed. By the 20th year rancher income would be up $57,000 annually (see Tables 4-5 and 4-6).

Range Improvements

The same amounts would be spent on range improvements and maintenance as in the Proposed Action. They would be installed over a 20-year time period instead of 5 as in the Proposed Action.

Recreation-Related Income

This alternative would not impact recreation-related income.

Secondary Income Impacts

Secondary impacts would gradually increase as range improvements are installed and rancher income and maintenance costs go up accordingly. Secondary income would increase from $150 in year one to $4,600 in year six to $17,000 in year twenty.

Employment

Employment would gradually increase along with range improvement installation. Employment would increase from 0 jobs in year one to 3 jobs in year six and 9 jobs in year twenty.

Ranch Consolidation and Conversion

No impact.

Capital Position

There would be no impact in the short-term. In the long-term the 24 permittees receiving increases in active preference would have their capital position improved. The remaining 20 permittees would experience no change in their active preference and would not be affected.

Summary

Rancher income would be unchanged in the short-term and increased by $57,000 annually by the 20th year.

Expenditures for range improvements would be the same as the Proposed Action except they would occur over 20 years instead of 5.

Secondary income impacts would increase from $150 in year 1 to $17,000 in year 20.

Employment would gradually increase until nine jobs are gained by the 20th year. There would be no impact on ranch consolidation. Capital position would be improved for those 24 permittees receiving increases in active preference over the long-term. The regional net present worth would be $433,000.

Social Conditions

Over the long-term, social conditions would be beneficially affected the same as the Proposed Action. Initially social conditions and ranchers' feelings would not be impacted. The beneficial effects of any increases in AUMs would be spread over a greater length of time. Therefore, this alternative would not have the extent of impact at any one time that the Proposed Action would have.

Alternative 3 - No Livestock Grazing

Soil-Water Resources

Implementation of the No Grazing Alternative would result in a major improvement of erosion conditons in all the watersheds of the EIS area. Gully lengths would decrease an anticipated 20+ percent on 299,465 acres in all 33 allotments. Channel stability conditons would increase as lower bank cutting and bottom deposition become less severe on 99.81 miles of stream. Mass wasting would experience little or no improvement. However, bank vegetation protection would increase on 10-20 percent of all streams. Refer to Tables 4-1, 4-2, and 4-3.

Vegetation/Livestock Grazing

Forage Allocation

Discontinuing livestock grazing would result in at least a 100 percent increase in cover. Overall production can be expected to increase between 45-90 percent. However, productivity of each individual forage plant will decrease (Stoddart, et. al., 1975).

Species composition would change dramatically and ecological range condition could be expected to be at or nearing climax (natural potential) on any given site after 20-years. Range forage condition, however, would decline steadily; forage quality decreases with disuse (Stoddart, et. al., 1975). This is assuming no serious effects from wildfire, insects, or disease on all sites.

Grazing Management

If no livestock are licensed to graze public land, grazing management would not be necessary. Wildlife habitat management may be implemented to insure against habitat degradation through overpopulation; under utilization; and uncontrolled wildfires, insects, or disease.

Range Development

No new range improvements would be constructed for the benefit of livestock. Facilities for wildlife, watershed, recreation and other resources and uses would continue under existing programs. Range management facilities currently in place would not be removed. However, only those improvements beneficial to other uses would be maintained.

Wildlife

Terrestrial

This would allow the greatest wildlife habitat improvement of the several alternatives. As compared to the No Change alternative, deer potentially could increase to 5,800 (up 16 percent), elk to 700 (up 40 percent), antelope to 1,600 (up 34 percent), and bighorn sheep to 900 (up 80 percent).

Situations in which livestock compete with wildlife for forage, cover, and/or space would be eliminated. Wildlife carrying capacity would increase or decrease depending on the vegetation's reaction to livestock removal. Reaction to this alternative would depend on the species and the season in which their use on BLM occurs.

Where areas presently exist in which the shrub component is being maintained by livestock grazing levels and/or grazing systems, then discontinuance of grazing would have long-term results. Negative effects would occur to certain wildlife species at one or more seasons during the year. Those areas affected would be antelope and deer winter range, antelope fawning cover areas, sage grouse areas, and non-game and small game cover areas.

Beneficial effects of no livestock grazing would occur in areas where livestock are depleting the forb and grass components to such an extent that a limiting factor to wildlife is being created or enhanced. In these situations, antelope and deer spring and summer ranges, sage grouse spring and summer use areas (especially brood areas), non-game and small game feeding areas, elk use areas, and bighorn use areas would benefit.

Elk would benefit greatly from livestock elimination since space and forage competition with livestock are high. Population expansion would most likely occur in the Hat Creek, Cow Creek, Allison Creek, and Upper Pahsimeroi areas. Severe limitations of adequate thermal cover in much of the EIS area would prevent population levels sufficient to take full advantage of the available forage.

Bighorn sheep populations would expand extensively (either naturally or through transplants) along the Salmon River breaks between Cronks Canyon and Lake Creek and along the Lost River Range from about Dead Cat Canyon north. The probabilities of mortalities to bighorns from disease or parasites distributed by domestic sheep would be significantly reduced on those allotments presently used by both bighorn and domestic sheep.

The effects of livestock on riparian areas would be eliminated. This would especially enhance small game and non-game such as grouse, Hungarian partridge, chukars, rodents, birds of prey, song birds, rabbits, and many of the species harvested for their pelts.

Under this alternative no livestock range improvements would be installed. However, range improvements benefiting wildlife would be developed. No additional fences would be constructed and no additional fence-related impacts to wildlife would occur. This would particularly benefit big-game on winter and spring ranges.

Aquatic

On the two streams where livestock are limiting factors to improvement, the fisheries habitat would begin improving as soon as the livestock were removed. This would involve 2 miles of Mahogany Creek and 7 miles of Burnt Creek.

Cultural Resources

Damage to cultural resource sites from livestock trampling and subsequent erosional activities would cease on all 372,306 acres, constituting an improvement over the present situation. Benefits would be best realized in areas where livestock now concentrate.

Range improvements for wildlife would still be installed and implemented on approximately 6,500 acres or 2 percent of the EIS area. The beneficial and detrimental impacts to cultural resources of the installation and manipulation projects would be the same as those discussed under the Proposed Action. However, wildlife use effects would be less than the combined livestock and wildlife use impacts of the Proposed Action.

Visual Resources

The resulting effect of this situation would be fewer additional visual impacts on public lands. Present range improvements would still provide impacts to visual resources and future improvements for wildlife would also affect visual quality on 6,500 acres. However, since no new livestock related improvements would be installed, the net result would be fewer impacts. In addition, the impacts resulting from livestock activities such as trailing along fences and the removal of vegetation from around water developments would no longer occur on public lands. The few visual impacts resulting from grazing systems would not exist.

Since grazing would probably still occur on state and private lands, these areas would have to be fenced to control livestock. Although these visual impacts would not be occurring on public lands, the total result of this would be a negative visual effect.

Recreation

This alternative would allow wildlife unrestricted use of forage resources and therefore allow an increase in wildlife numbers over the Proposed Action goals. Hunter and non-hunter opportunities would therefore be greater under this alternative than the Proposed Action.

Existing fences would still restrict recreationist movement; however, no new fences would be built. The possibility would exist that all state and private lands would be fenced thereby restricting movement in those areas. Since cattle would not be using public lands and grazing systems would not exist, a more consistant wildlife and recreationist use pattern would occur.

Economics

Rancher Income

Rancher income would be reduced by $397,000 annually with this alternative. This loss would continue through the long-term. All permittees would be reduced 100 percent (see Tables 1 and 2).

Range Improvement

There would be no range improvements installed.

Recreation-Related Income

No impact.

Secondary Income Impacts

Secondary effects would cause an additional annual income loss of $112,000 through the entire economy. This loss would continue through the long-term.

Employment

There would be 43 jobs lost due to this alternative. This would be a long-term loss.

Ranch Consolidation and Conversion

This alternative would cause the pressure to consolidate or sell ranches to be quite extreme. Permittees in group 4 would not be able to meet cash expenses and would find it imperative to change their operations to stay in business. Other groups would find their income greatly reduced but they would still be able to meet cash expenses.

Capital Position

Because reduction in permits or permit values are measured against the total qualified demand, the impact of the loss of capital assets in the form of federal AUMs could be larger than the direct loss of income due to reductions measured against the 5-year average use. Neilson and Workman (1971) address the point: "Grazing permits held today represent an asset which a rancher can borrow against or sell on the market. If this asset becomes non-saleable, the rancher has lost the opportunity of marketing a valuable asset...If the permit is reduced, the value of the permit is also reduced, and the rancher has lost a capital asset which previously could have been sold, or at the least, been used as collateral for securing loans."

In addition, any impacts in this area would occur when a rancher sells his ranch, his grazing permit, or uses the federal AUMs for collateral when obtaining a loan. The BLM does not officially recognize that grazing permits have attained a capitalized value and are bought and sold on the marketplace.

Summary

Rancher income would be reduced $397,000 annually. Secondary income would be reduced by $112,000 annually. There would be 43 jobs lost. Ranch consolidation could be heavily impacted with size group 4 unable to meet cash expenses. Capital position would be more adversly impacted than in any other alternative. The regional net present worth for this alterntive would be -$5.2 million.

Social Conditions

Alternative 3 would have far greater consequences than the Proposed Action or any of the alternatives. The removal of grazing from public lands in the study area could cause all operators to seek outside employment to subsidize ranch income, consider ranch consolidation, or sale of the ranch in order to survive. If many ranches were in fact sold, local community organizations and businesses could experience losses of membership or clientele that could threaten their continued existence. In some cases, sale of the ranch and subsequent relocation could mean loss of the ranching lifestyle. Needless to say, social conditions for most permittees would be affected profoundly and negatively.

Alternative 4 - Maximizing Range Improvement Benefits

Soil - Water Resources

Under this alternative 87,685 acres on allotments with grazing systems would experience a 10-20 percent decrease in gully lengths. Gully lengths would also decrease on 33,680 acres on allotments not under intensive management. Therefore, 33 percent of the EIS area would show an improvement in erosion conditon. Maintenance of current conditions would occur on 196,467 acres under grazing systems and 54,468 acres not under grazing systems. This would result in maintenance of 67 percent of the area.

Construction of improvements would cause temporary disturbance of vegetative cover on 155 acres. Vegetation manipulations and vegetation manipulation maintenance would affect 10,144 acres. Total range improvement acres would be 10,299 acres or 3 percent of the EIS area.

Vegetation/Livestock Grazing

Forage Allocation

Initial stocking rates under this alternative would be the same as the Proposed Action. This would serve to bring grazing use in line with inventoried carrying capacity. There would be a 26,689 AUMs allocated for livestock grazing, a 1,290 AUM reduction (4.6 percent) from current active preference. Table 2-4 gives an allotment breakdown of reductions from, or increased to, the current active preference.

As discussed under the Proposed Action, vegetation would benefit from the adjustment in grazing use. At the end of 20 years, AUMs available for livestock use should reach 29,764; an 11.5 percent increase in vegetative production over initial stocking rate. This means 3 percent greater production, after 20 years, than under Alternative 1.

Grazing Management

Only 11 allotments would be scheduled for intensive management: Findley Basin, Allison Creek, Hat Creek, Falls Creek, Patterson Creek, County Line, Lower Goldburg, Big Creek, and Bear Creek. Of these, there would be 4 allotments in deferred-rotation (20,083 acres), 4 in rest-rotation (43,828 acres), and 3 in seasonal grazing (13,914 acres). This is 21 percent (77,825 acres) of the grazed acres in the EIS area.

The largest amount of management funds will be spent on these 11 allotments. The remaining 22 allotments not identified for intensive management will receive management as has occurred in the past.

Intensive management will take place on a 5-year schedule and scheduled management on the other 22 allotments will be over a 20 year period. After 20 years, benefits to vegetation would be approaching 85 percent of the Proposed Action objectives.

Range Developments

All range improvement projects scheduled for the 11 allotments discussed above will be implemented on a 5 year schedule. Of those not proposed for the 11 allotments , it is estimated that about 30 percent will be completed in the long-term (20 years).

The results, after 20 years would be as follows: 38 miles of pipeline, 41 troughs, 13 reservoirs, 37 miles of fence and 7,684 acres of new vegetation manipulation. Also, 2,460 acres of vegetation manipulation maintenance would be done.

The above mentioned range improvements are necessary for the success of the proposed grazing management systems. As discussed under Grazing Management, benefits to vegetation after 20 years will be approaching 85 percent of the proposed objectives.

Wildlife

Terrestrial

This alternative varies little from the Proposed Action from a terrestrial wildlife standpoint.

Benefits or impacts on wildlife as a result of this alternative are not sufficiently different from those associated with the Proposed Action to warrant detailing.

Aquatic

The 5.3 miles of Burnt Creek would be fenced under this alternative. This action is part of the MFP Step 2 recommendations.

This project would be one of the major identified improvements which would be installed within 5 years. As in the Proposed Action the present fair-poor condition would improve to an excellent-good condition as a result of this project implementation.

The allotments through which Mahogany Creek flows are not in the intensive management category of Alternative 4. Therefore, the 2.25 miles of stream identified in fair-poor condition would not change.

Cultural Resources

Under this alternative 7,840 acres or 2 percent of the EIS area would be disturbed by new projects throughout the 20 year implementation period. This would result in a subsequent increase in impacts to cultural resources as a result of installation and development of range projects. Whether this increase in impacts would be proportional in all areas can not be determined since the sites are not now known and would not be known unless an area was proposed for development and a consequent survey was performed. At the same time since more projects would be proposed, more acres would be surveyed for cultural resources. The possibility would exist for cultural resources associated with these projects to be discovered.

Livestock related impacts (trampling, soil movement, etc.) resulting from grazing system implementation would be increased on seven allotments (63,590 acres or 17 percent of the EIS area). On three allotments (63,459 acres) existing grazing systems would continue the present effects.

This alternative would result in 71,430 acres or 19 percent of the total EIS area having an increase in possible impacts to yet unknown cultural resources.

Visual Resources

Under this alternative approximately 54 acres of water development related visual impacts would occur the first five years and 112 acres would be effected in the long-term. This would result from installation of pipelines, water troughs, and reservoirs. Of this, approximately 58 acres will revegetate over the long term and lose its visual impacts. Therefore 54 acres would continue into the long-term due to vegetation loss around troughs and reservoirs.

Twenty-eight miles of fence would create impacts to 28 acres in the short-term due to fence installation and 40 miles within 20 years, would effect 40 acres. In the long-term this acreage would have visual effects due to cattle trails along fencelines and variations in vegetation use on either side of the fence.

Vegetation manipulation would cause increases in contrast to the form, line, color, and texture elements in the short-term to 8,800 acres and 10,144 acres in the long-term. However, these effects would decrease as time passes and the manipulation would lose its significance eventually.

In summarizing the above effects, total acreage visually affected in the short-term would be 8,882 acres or 2 percent of the total EIS area. Of these acres over the long-term, 10,296 acres or 3 percent of the EIS area would have visual impacts within 20 years.

Recreation

The results of this alternative would have essentially the same effects as the Proposed Action. There would be an increase in hunting opportunities above the present situation porportional to the increase in wildlife populations. This increase would be entirely dependent upon the Idaho Department of Fish and Game Management decisions. However, non-consumptive activities such as sightseeing would increase independent of any regulatory agency.

Economics

Rancher Income

In the short-term this alternative would have the same impact as the Proposed Action with $1,000 in annual income gained.

In the long-term there would be an annual income gain of $17,000. Annual changes in the long-term vary from an increase of 17 percent in group 4 to a reduction of 8 percent in group 2 (see Table 2).

Range Improvements

Approximately $475,000 would be spent on range improvements and land treatments. It is estimated that $84,000 of that would be spent locally. Maintenance of these range improvements would cost $29,000 annually with $17,000 being spent locally.

Recreation-Related Income

This alternative would not impact recreation-related income in the area.

Secondary Income Impacts

In the short-term the secondary income changes would amount to an additional gain of $750. In the long-term it would amount to an annual income gain of $5,200.

Employment

In the short-term there would be an increase of one job. In the long-term there would be a gain of three jobs.

Ranch Consolidation and Conversion

There would be no impact to ranch consolidation and conversion due to this alternative.

Capital Position

In the short-term, impacts to capital position due to this alternative would be similar but not as severe as Alternative 3. In the long-term, the impact would be mixed with some permittees continuing to experience reductions in active preference and some receiving increases.

Summary

Rancher income would increase by $1,000 in the short-term, $17,000 in the long-term. Range improvements would cost $475,000 with $84,000 spent locally. Maintenance costs would be $29,000 annually with $17,000 spent locally. Secondary impacts would increase income by $750 in the short-term and $5,200 in the long-term. Employment would increase by one job in the short-term and three jobs in the long-term. No impact would occur on ranch consolidation. In the short-term, capital position would be worsened for most permittees. The regional net percent worth would be $345,000.

Social Conditions

Initially this alternative would have the same effects on social conditions as the Proposed Action. The 18 permittees who run in the 11 allotments on which intensive range management would be practiced would have positive feelings toward the future of their operation. This would result from planned intensive management in those allotments. The 26 permittees running in allotments not scheduled for intensive management would also have postitive social well-being feelings, however, not to the same extent as the other 11 permittees.

Therefore, in the long-term social conditions would improve for all 44 permittees with 18 of them receiving greater improvement than the rest.

Alternative 5 - Reduced Livestock

Soil-Water Resources

This alternative would result in fewer numbers of livestock. However, the same grazing systems and all range improvements scheduled under the Proposed Action would be implemented and installed. As a result, erosion conditions would improve or maintain on about the same acres as the Proposed Action. The difference is not significant enough to calculate.

Grazing pressures on channel stability would be reduced, thus increasing the miles of stream in good and excellent condition and decreasing the miles of stream in fair and poor condition by 10-20+ percent. Refer to Tables 4-1, 4-2, and 4-3.

Vegetation/ Livestock Grazing

Forage Allocation

Reduced livestock use would result in a 19 percent reduction from current active preference (22,778 AUMs).

Twenty years after implementation, vegetative production would increase 26 percent over Alternative 1. This represents a 59 percent increase over the initial stocking rate. Ecological range condition and trend can also be expected to increase steadily.

In the long-term (20 years), about 104 percent of the Proposed Action objectives would be realized.

Grazing Management

Implementation of grazing systems and range developments over a 20 year period would show similar results as discussed under Alterntive 2. However, since the grazing use proposed here is 19 percent less than Alternative 2, benefits after 20 years should be higher.

Range Developments

As discussed above, implementation of management and range developments over a 20 year period would provide similar results as shown under Alternative 2. However, while vegetative production, ecological range condition, and trend would improve steadily, a shorter implementation schedule would enhance these improvements.

Wildlife

Terrestrial

Theoretical potential for big game increases under this alternative should be essentially similar to those of the Proposed Action. Increased benefits to wildlife over the Proposed Action could be realized with an abbreviated range improvement and grazing system time frame.

This alternative would reduce the intensity of wildlife/livestock interaction. Range improvement resulting from fewer livestock would be promoted; however, any benefits or negative impacts from proposed developments (fencing) and grazing systems would occur over a longer time frame than the Proposed Action.

Since livestock AUMs would be limited to the existing active preference, future increases in forage resulting from the Proposed Action range improvements and grazing systems would be allocated to wildlife and nonconsumptive uses. This would result in long-term benefits to wildlife populations, allowing them to increase with the associated increase in carrying capacity beyond 1985 projected population levels.

All species of wildlife would benefit under this alternative. Riparian zones would receive use similar to that of the Proposed Action and would be impacted similarly.

Aquatic

Burnt Creek would be fenced under this alternative. Long-term impact to fisheries habitat would be the same as the Proposed Action, only occurring in a 20-year time frame.

Cultural Resources

Either shorter use periods or fewer livestock would be permitted on 24 allotments (183,889 acres or 49% of the area) under this alternative than Alternative 1. Therefore, impacts resulting from trampling and subsequent erosion would continue but on a lower level. Decreased livestock levels on some allotments would improve vegetative cover, reduce erosion, and tend to stabilize cultural resource sites.

Long-term impacts expected from range improvements and grazing systems would be the same as those for the Proposed Action. However, these impacts would occur over 20 years instead of 5 years, allowing more time for cultural resources to be found, recorded, and studied.

Visual Resources

Visual impacts resulting from this alternative would eventually be the same as those under the Proposed Action since all proposed improvements would be implemented on a 20-year time frame. Therefore, the effects would be spread over a longer time frame resulting in a less intense impact at any one time. Since this alternative would result in fewer cattle on public ranges, the visual effects of livestock related impacts would be somewhat less than the Proposed Action.

Recreation

This alternative would result in more recreational activities related to wildlife hunting and nonconsumptive uses than the Proposed Action. Fewer livestock would relieve pressure on the riparian zones and would increase the quantity and quality of forage resulting in accompanying benefits to wildlife.

Since all the proposed range improvements would be installed/implemented, wildlife could take advantage of these. However, recreational benefits from increased wildlife numbers resulting from range improvements would be realized over a 20-year time span. Impacts of fences would be the same as the Proposed Action.

Fishing activities would be benefited as in the Proposed Action since Burnt Creek would be fenced and a grazing system would be implemented in the Mahogany Creek area.

Economics

Rancher Income

In the short-term there would be an annual income loss of $37,000 with this alternative. Changes in AUM levels would vary by group size with group 6 being reduced 4 percent and group 1 being reduced 23 percent. These are all reductions from average use (see Table 4-5). Overall there would be 30 permittees receiving AUM decreases, 10 receiving increases, and 4 receiving no change. In the long-term there would be an annual income gain of $10,300.

AUM changes in the long-term vary from a reduction of 2 percent for group 1 to a 10 percent increase for group 3 (see Table 4-6).

Range Improvements

The same amount would be spent on range improvements and under the same schedule as in the Proposed Action.

Recreation-Related Income

No impact

Secondary Income Impacts

In the short-term there would be an additional income loss of $10,000 due to the secondary impacts. In the long-term the secondary impact would amount to an additional income gain of $3,500 annually.

Employment

In the short-term there would be a loss of two jobs. In the long-term this would change to a gain of three jobs.

Ranch Consolidation and Conversion

This alternative would initially cause some permittees to consider selling or consolidating due to income losses. All permittees should be able to meet their cash expenses.

Capital Position

This alternative would have impacts similar to, although not as severe as Alternative 3 (no grazing) in the short-term. In the long-term active preference should be restored eliminating the impact. There would be no permittees experiencing an improvement in their capital position.

Summary

Rancher income would decrease by $37,000 annually in the short-term. In the long-term it would increase by $10,300. Range improvement costs would be the same as the Proposed Action. Secondary impacts would reduce income by an additional $10,000. In the long-term an additional $3,500 in income would be gained. Employment would be reduced by two jobs in the short-term and increased by three jobs in the long-term. There would be a slight impact on ranch consolidation. Capital position would initially be worsened for most permittees. The regional net present worth would be $156,200.

Social Conditions

Initial effects would be some negative impacts to most of the permittees with some permittees having no impacts to them. Over the long-term since AUMs would not be increased above the existing active preference, social conditions would remain unchanged for most ranchers from the present situation. Therefore fewer beneficial impacts to social conditions would occur than in the Proposed Action.

Short-Term Use Versus Long-Term Productivity and Irreversible and Irretrievable Commitment of Resources

The relationship between short-term use of the EIS area and its long-term productivity is shown on Table 4-7. Also shown is how the irreversible and irretrievable commitment of resources compare to these uses.

For the purpose of this analysis, "irreversible" describes any action, impact, or use which is not capable of being reversed. "Irretrievable" means irrecoverable; once used, not readily replaceable.

Table 4-7

Short-Term Use Versus Long-Term Productivity and Irreversible and Irretrievable Commitment Resources.

Alternatives	Short-term Use	Long-term Productivity 1/	Irreversible	Irretrievable
Proposed Action	26,689 AUMs of livestock use which is 1,290 AUMs less than current active preference. 5,971 big game animals would use the area. 13,610 acres of vegetation and soil disturbance from range projects 25 allotments into grazing systems in 5 years.	31 percent increase in available AUMs within 20 years of implementation. This would increase livestock AUMs by 8,327 and would allow an increase in big game populations bringing the total to 8,094 big game animals.	None	Same amount of soil erosion would occur on 57 percent of the EIS area. Less erosion would occur on the remainder. 67 percent of the area would receive more disturbance to cultural resources.
Alternative 1 No Change	27,979 AUMs of livestock use which is the same as current active preference. 5,971 big game animals would use the area. 1,021 acres of vegetation and soil disturbance from range projects. 4 allotments into grazing systems in 5 years.	3 percent increase in available AUMs within 20 years would increase livestock AUMs by 840 and would allow an increase in big game population bringing the total to 7,194 big game animals.	None	Less erosion would occur on 42 percent of the EIS area. Same amount of soil erosion would occur on remainder. 17 percent of the area would receive more disturbance to cultural resources.

1/An increase in livestock AUMs and big game animals is a reflection of the increase in forage production.

Table 4-7 (cont.)

Short-Term Use Versus Long-Term Productivity and Irreversible and Irretrievable Commitment of Resources.

Alternatives	Short-term Use	Long-term Productivity 1/	Irreversible	Irretrievable
Alternative 2 Prolonged Change	27,979 AUMs of livestock use which is the same as current active preference. 5,971 big game animals would use the area. 3,403 acres of vegetation and soil disturbance from range projects. 6 allotments into grazing systems in 5 years.	17 percent increase in available AUMs within 20 years of implementation. This would increase livestock AUMs by 4,756 and would allow an increase in big game populations bringing the total to 7,194 big game animals.	None	Same as Alternative 1 for soil erosion. Same as Alternative 1 for cultural resources.
Alternative 3 No Livestock Grazing	No AUMs of livestock use. 5,971 big game animals would use the area. 681 acres of vegetation and soil disturbance from range projects. No additional grazing systems.	45-90 percent increase in overall production which would allow an increase in big game populations bringing the total to 9,000 big game animals.	None	Less erosion would occur on all areas . No additional irretrievable commitments to cultural resources would occur.
Alternative 4 Maximizing Range Improvement Benefits	26,689 AUMs of livestock use which is 1,290 AUMs less than current active preference. 5,971 big game animals would use the area. 8,882 acres of vegetation and soil disturbance from range projects 6 allotments into grazing systems in 5 years.	11.5 percent increase in available AUMs within 20 years of implementation. This would mean 29,764 AUMs would be available to livestock and a total of 8,094 big game animals could use the area.	None	67 percent of the area would have the same amount of soil erosion as it has now. 19 percent of the area would receive more disturbance to cultural resources

Table 4-7 (cont.)

Short-Term Use Versus Long-Term Productivity and Irreversible and Irretrievable Commitment of Resources.

Alternatives	Short-term Use	Long-term Productivity 1/	Irreversible	Irretrievable
Alternative 5 Reduced Livestock	22,778 AUMs of livestock use which is 5,201 AUMs less than current active preference. 5,971 big game animals would use the area. 13,610 acres of vegetation and soil disturbance from range projects. 25 allotments into grazing systems in 20 years.	26 percent increase in available AUMs within 20 years of implementation. However, livestock productivity will not increase beyond current active preference. Big game populations would be the same as the Proposed Action.	None	Same as Proposed Action for soil erosion. 51 percent of the area would receive less disturbance to cultural recources.

CHAPTER V

CONSULTATION AND COORDINATION

CONSULTATION AND COORDINATION

The planning issues related to rangeland management were used to develop the Proposed Action in this EIS. The issue identification process for the land use plan involved individual contact with other Federal agencies, State agencies, county governments, range users, special interest groups, District Advisory Board, and District Advisory Council. The District held open houses to solicit ideas and issues from the general public.

The following list includes government agencies, organizations, and individuals potentially affected by land use decisions in the Ellis-Pahsimeroi area.

Federal Agencies

Department of Interior
  Fish and Wildlife Service
Department of Agriculture
  Soil Conservation Service
  Environmental Protection Agency
  Forest Service

State of Idaho Agencies

Department of Fish and Game
Department of Health, Welfare and
  Environmental Services
Department of Lands
Department of Water Resources
Historic Preservation Office
University of Idaho Extension Service
Idaho State Clearinghouse

Local Agencies

Mayor, Salmon
Lemhi County Planning Commission
Lemhi County Commissioners
Mayor, Challis
Custer County Planning Commission
Custer County Commissioners

Elected Officials

Federal
  Senator Steve Symms
  Senator James McClure
  Congressman George Hansen
  Congressman Larry Craig

State
  Governor John Evans
  Representative Ray Infanger
  Representative Wayne Tibbets
  Senator Vearl Crystal

Advisory Councils

Salmon District Advisory Council
Salmon District Grazing Advisory Board

Organizations

Wild Horse Organized Assistance
Idaho Humane Society
American Humane Society
Idaho Environmental Council
Idaho Wildlife Federation
Trout Unlimited
Idaho Cattle Feeders Association, Inc.
Tri-County Cattleman's Association
Lemhi Cattle Growers Association
Lemhi County Wool Pool
Idaho Archaeological Society, Inc.
Idaho Conservation League
Salmon River Trail Ride Associaiton
Salmon River Motorcycle Association
Northwest Steelheaders Association
Challis Snowmobile Club
Natural Resources Defense Council
Western Environmental Trade
Committee for Idaho's High Desert
League of Women Voters of Idaho
Northern Rockies Chapter Sierra Club
The Institute of Ecology

Individuals

All grazing users

APPENDICES

Appendix A

Evaluation of the Proposed Action Through the Bureau Planning System

Consolidated MFP 1 Livestock Recommendations	Other MFP 1 Resource Recommendation Which Conflict	Multiple Use Recommendation MFP 2	Rationale for the Multiple-Use Recommendations	Resource Trade Offs
1. Allocate 29,713 AUMs of forage to livestock.	1. Allocate 2,751 AUMs total to big game of which 1,607 AUMs are on the suitable/potentially suitable range.	1. Allocate 26,689 AUMs to livestock and 2,751 AUMs to wildlife. Allow increases on 3 allotments. Don't allow increases on other allotments until monitoring complete.	1. Bureau policy to allocate for a reasonable number of wildife. Going to get base data from which to evaluate any changes in range condition and trend before allowing increases.	1. The forage available for livestock would be reduced by 1,290 AUMs from active preference.
2. Implement AMPs with 10 rest-rotation, 19 deferred rotation and one seasonal grazing. Graze the Cronks Canyon and Morgan Creek bighorn sheep pastures with the adjoining allotments	2. Wildlife identified that any grazing system should take into consideration wildlife use and migration. Identify bighorn sheep as primary management species in identified wildlife pastures. Watershed and fisheries recommended eliminating grazing from Burnt Creek riparian zone.	2. Implement AMPs with 12 rest-rotation, 13 deferred rotation and 8 seasonal grazing. Do not graze the bighorn sheep pastures. Eliminate grazing from Burnt Creek riparian zone.	2. Improved grazing management is an economical and effective way of increasing range condition and productivity. The grazing systems would be designed to meet the physiological needs of key forage species. Elimination of grazing from Burnt Creek would upgrade riparian zone.	2. Implementation of the grazing systems would allow better distribution of livestock use and increase long term productivity. Wildlife pastures reserved for wildlife. Fencing of 4 miles of Burnt Creek would take 36 AUMs that would not be available for livestock.
3. Do vegetation manipulation on 11,274 acres (7 projects) and vegetation manipulation maintenance on 2,460 acres	3. Wildlife identified areas in need of vegetation manipulation and areas where work should not be conducted. Wildlife also identified standards by which some of this work should be conducted.	3. Do vegetation manipulation on 10,820 acres (14 projects) and vegetation manipulation maintenance on 2,460 acres.	3. By doing more, smaller projects they would meet wildlife criteria and VRM class objectives.	3. The short term visual quality and vegetation available for wildlife and livestock would be affected. The long term visual and vegetation would benefit.

Evaluation of the Proposed Action Through the Bureau Planning System (cont.)

Consolidated MFP Livestock Recommendations	Other MFP 1 Resource Recommendation Which Conflict	Multiple Use Recommendation MFP 2	Rationale for the Multiple-Use Recommendations	Resource Trade Offs
4. Develop the following facilities prior to implementation: 85 miles pipelines 89 troughs 30 reserviors 80 miles fence	4. Wildlife identified that any fence construction on wildlife migration routes would present problems with wildlife movement. Identified possible conflicts with VRM classes, wilderness and cultural recources.	4. Develop the following facilities prior to implementation: 85 miles pipeline 89 troughs 30 reserviors 69 miles pileline	4. All facilities would be designed and placed where they would present the lease impacts. The developments are needed for proper distribution in the allotments.	4. There would be some short-term impacts but in the long term, this would be beneficial to all resources. This would result from better distribution of livestock.

APPENDIX B

Methodology for the Vegetation Inventory

The vegetation inventory for the Ellis-Pahsimeroi EIS area was conducted from September 1, 1978 to October 31, 1979. Field inventories and data analysis were completed during this time. The methods used in field inventory are described in the BLM Manual 4412.14.

Soil mapping and range condition mapping were conducted simultaneously. Soil-site correlations were verified by range conservationists and soil scientists from the SCS and BLM.

Production cages were placed on various site write-up areas (SWA) before the 1979 growing season to help estimate utilization.

Apparent trend information was collected at each ecological condition write-up area and clip plot location and recorded on BLM Form ISO 4400-3. These plots provided additional trend data to support the several years of photo trend information on file at the Salmon District.

Vegetation was characterized at 2 of the 10 plots on each transect. Grass and forbs were characterized within the 9.6 square foot weight estimation plot. Shrubs were characterized within a 1/100 acre circular plot measured from the center of the 9.6 square foot plot with an 11.7 foot hoop.

A condition write-up or clip plot transect was completed in every pasture within each allotment during the vegetation inventory. A total of 170 clipping plot transects and 821 condition write-ups were completed for the Ellis-Pahsimeroi area.

Data Analysis

The goal of the data analysis was to provide current range condition and production information which could be readily used in making management decisions. The methods used in the data analysis process are outlined in chronological order in Instruction Memorandum No. ID-78-85 (3/7/78). Involved in this procedure were two basic steps: (1) correlation of soils data with potential natural plant communities to delineate ecological sites within the inventory area; and (2) calculation of current, total air-dry plant production (pounds per acre), the degree of grazing use the plant or plant community can withstand while maintaining its vigor, and range suitability criteria. A more detailed description of the analysis follows.

The first step was determination of current productive capabilities within each primary ecological site to each observed condition class (fair, poor, good, or excellent - SCS 1976). The details of this process are explained by Burton and Miles (1978). It involves aggregating the clipping plot data into ecological sites (potential vegetal types) and then further stratifying into current vegetal types by condition class.

Mean production was calculated next for each vegetation class (that is grass, forbs and shrubs) and for total production. Appropriate standard errors and confidence intervals were calculated using Automated Data Processing (ADP).

Once per acre production data have been calculated for each ecological site by condition class, the percentage of each ecological site by condition class within a particular soil mapping unit was calculated. After the acres of each mapping unit were determined on a pasture basis, final forage production was calculated using ADP.

Because the Ellis-Pahsimeroi EIS area was inventoried during the low precipitation year, 1979, an adjustment was required to bring 1979's vegetation production up to an average year's production. Sneva's formula was used to determine a correction factor. The formula estimates potential plant growth using actual crop-year precipitation and median crop-year precipitation. A correction factor based on 85 percent of normal production was determined by using weather data from the Salmon District area.

Grazing Suitability

Included in the ecological site descriptive inventory was an assessment of a vegetation area's suitability for grazing. Suitability is defined as the adaptability of an area to grazing by livestock and wildlife (SRM 1974). A summary of acres unsuitable for livestock grazing by allotment is available upon request.

Vegetation Impact Analysis Method

Ecological Condition-Trend Prediction

The 20-year ecological condition response from grazing management was estimated for each alternative. When land treatments were proposed for an alternative, the condition response was adjusted to reflect these treated areas. Estimates were made with the knowledge of existing conditions, trend, and using related literature.

Cover and Productivity Prediction

Cover and productivity estimates were derived from the projections of 20-year ecological condition. Resource inventory data, describing the site cover and productivity of each ecological site and condition class, were collected in 1978 and 1979.

The following assumption was made: If an ecological site was projected to improve one condition class (such as from poor to fair), the resulting cover and productivity would be the same as other fair condition areas (refer to Example One).

Example One

Ecological Condition Acreages

	Poor	Fair	Good	Excellent	Treated
Current Situation	35	40	20	5	0
Projected Situation from Grazing Mgmt.	20	50	25	5	0
Projected Treatment	-15	-5	0	0	+20
Net Condition Response	5	45	25	5	20

After the 20-year ecological condition was predicted, cover and productivity values were recalculated. Computer data processing was used to make the calculations and insure their accuracy (see allotment Example Two, below).

Example Two

	Cover and Productivity by Ecological Condition				
	Poor	Fair	Good	Excellent	Treated
Ecological site effective cover (percent)	45	50	55	67	50
Ecological site Productivity (usable forage-lbs per acre)	125	175	200	225	250
Current Condition (acres)	35	40	20	5	0
Projected Condition (acres)	5	45	25	5	20

$$\text{current cover} = \frac{(45\%\times 35 \text{ acres})+(50\%\times 40 \text{ acres})+(55\%\times 20 \text{ acres})+(65\%\times 5 \text{ acres})}{100 \text{ acres}} = 50\%$$

$$\text{projected cover} = \frac{(45\%\times 5 \text{ acres})+(50\%\times 45 \text{ acres})+(55\%\times 25 \text{ acres})+(65\%\times 5 \text{ acres})+(50\%\times 20 \text{ acres})}{100 \text{ acres}} = 52\%$$

$$\text{current productivity} = \frac{(125 \text{ lbs per acre} \times 35 \text{ acres})+(175 \text{ lbs per acre} \times 40 \text{ acres})+(200 \text{ lbs per acre} \times 20 \text{ acres})+(225 \text{ lbs per acre} \times 5 \text{ acres})}{100 \text{ acres}}$$

= 165 lbs per acre usable forage

$$\text{projected productivity} = \frac{(125 \text{ lbs per acre} \times 5 \text{ acres})+(175 \text{ lbs per acre} \times 45 \text{ acres})+(200 \text{ lbs per acre} \times 20 \text{ acres})+(225 \text{ lbs per acre} \times 5 \text{ acres})+(250 \text{ lbs per acre} \times 20 \text{ acres})}{100 \text{ acres}}$$

= 186 lbs per acre usable forage

Forage Allocation Methodology

To make a more equitable apportionment of forage between grazing animals, it is desirable to separate an animal's preference for each plant species from the degree to which the plant can withstand grazing (or herbage removal) and will maintain itself in a viable, healthy conditon. The amount of use depends upon its stage in phenological development. It is also influenced by the amount of precipitation it receives after grazing.

Plant Use Factors

A use factor was applied to the production of each plant species to determine the total pounds of herbage that can be removed by grazing animals without affecting the viability of the plant. The herbage that can be removed by the grazing animal is designated as usable forage.

A use factor was not applied to unpalatable plants. Unpalatable plants are those not grazed by any ungulate (hoofed animal) except under heavy use.

A review of the literature shows that most grass species will, depending upon the time of year, tolerate herbage removal of up to 50 percent of its annual production by weight. The literature does not contain much information about the proper utilization of forbs and shrubs.

The following table shows use factors by plant class for perennial and annual species for the appropriate management category.

Table B-1

Percent Allocated Forage Using Proper Use Limits

	Spring	Summer	Fall/Winter
Grass	30%	40%	50%
Forbs	25%	25%	25%
Shrubs	30%	30%	30%

exceptions to this are as follows:

Annual Grass	50%	20%	30%
Crested Wheatgrass	40%	60%	60%
Sandberg's Bluegrass	50%	20%	0%

Use factors are lower in the spring and early summer for two reasons: (1) defoliation of the plant any time during the growing period is harmful to the plant, and (2) production figures are based on mature weights, and plants have actually produced only part of their total production during this period.

Animal Diets

Data from various sources used fecal analysis to determine the animal preference or dietary requirements. Table B-2 reflects the dietary composition of a properly grazed range for various ungulates. Table B-3 shows the pounds consumed per month, and Table B-4 shows dietary composition of forage consumed by season.

Table B-2

Diet Composition of Certain Ungulates in Percent of Grass, Forb, Shrub

	Spring			Summer			Fall/Winter		
	G	F	S	G	F	S	G	F	S
Cattle	90	3	7	90	3	7	86	0	14
Horses	73	23	4	92	3	5	72	16	12
Deer	43	10	47	4	51	45	12	5	83
Antelope	24	26	50	9	20	71	6	6	88
Bighorn	88	3	9	70	20	10	74	8	18
Domestic Sheep	35	37	28	35	37	28	24	1	75
Elk	51	43	6	50	38	12	50	34	16

Table B-3

Pounds of Forage Consumed per Month

	Pounds per Acre
Cattle	800
Horses	1,000
Deer	117
Antelope	54
Bighorn	118
Domestic Sheep	162
Elk	258

Table B-4

Pounds of Grass, Forb and Shrub Consumed by Season

	Spring			Summer			Fall/Winter		
	G	F	S	G	F	S	G	F	S
Cattle	720	24	56	720	24	26	688	0	112
Horses	730	230	40	920	30	50	720	160	120
Deer	50	12	55	5	59	53	14	6	97
Antelope	13	14	27	5	11	38	3	3	48
Bighorn	104	3	11	83	23	12	87	10	21
Domestic Sheep	57	60	45	57	60	45	39	2	121
Elk	132	111	15	129	98	31	129	88	41

Forage Production Determination

Since allotments are grazed during different seasons or portions of different seasons, seasonal dates were established.

Spring - March 1 through June 15
Summer - June 16 through August 31
Fall/Winter - September 1 through February 28

To determine the amount of forage available for allocation, ecological sites were stratified by condition class. The total herbage production for each individual soil mapping unit was calculated using percent composition of each ecological site by condition class within the particular soil mapping unit. This percent composition was determined from an Order 3 soil survey.

The per acre production of vegetation within each mapping unit was then multipled by the percent of the proper use limits for each plant species within a vegetation class (shown in the proper use limits Table B-1). This was done by using ADP. Table B-5 shows how the amount of usable forage per acre is determined by season of year for each mapping unit by condition class. This example depicts the usable forage calculations.

Table B-5

Per Acre Usable Forage by Season for Mapping Unit PFA in Poor Condition (Mean)

Species	Total Production Per Acre (dry Air)	Use Factor	Pounds Forage (1)	Use Factor	Pounds Forage (2)	Use Factor	Pounds Forage (3)
Grass (4)							
Agsp	15.59	.3	4.7	.4	6.2	.5	7.8
Care	.33	.3	.1	.4	.1	.5	.2
Elam 2	5.42	.3	1.6	.4	2.2	.5	2.7
Orhy	1.25	.3	.4	.4	.5	.5	.6
Orsu	.05	.3	.0	.4	.0	.5	.0
Posa 3	25.30	.5	12.7	.2	5.1	.0	.0
Sihy	7.90	.3	2.4	.4	3.2	.5	4.0
Spcr	5.99	.3	1.8	.4	2.4	.5	3.0
Stco 4	4.45	.3	1.3	.4	1.8	.5	2.2
	66.28		25.0		21.5		20.5
Forbs (4)							
Arabi 2	1.28	.25	.3	.25	.3	.25	.3
Arena	1.10	.25	.3	.25	.3	.25	.3
Phho	39.33	.25	9.8	.25	9.8	.25	9.8
Other Forbs	3.41	.25	.9	.25	.9	.25	.9
	45.12				21.5		11.3
Shrubs (4)							
Arfr 4	.46	.30	.1	.30	.1	.30	.1
Arsp 5	.16	.30	.0	.30	.0	.30	.0
ArtrW	242.95	.30	72.9	.30	72.9	.30	72.9
Atco	2.35	.30	.7	.30	.7	.30	.7
Atnu 2	4.88	.30	1.5	.30	1.5	.30	1.5
Chna	2.32	.30	.7	.30	.7	.30	.7
Chvi 8	2.35	.30	.7	.30	.7	.30	.7
Eula 5	1.42	.30	.4	.30	.4	.30	.4
Haac	.23	.30	.0	.30	.0	.30	.0
Oppo	1.43	.30	.4	.30	.4	.30	.4
	258.55		77.4		77.4		77.4

(1) Result of first column times the second column.
(2) Result of first column times the fourth column.
(3) Result of first column times the sixth column.
(4) Plant abbreviations from SCS Idaho Plant List.

The usable forage per acre by vegetation class is then multiplied by the associated acres of a particular mapping unit within an allotment. The calculations of the allowable forage production determinations and annual allocations were completed for the EIS area using ADP. The following is an example of the usable forage by mapping unit and the total available forage on the suitable portion of the Rock Creek allotment.

Table B-6

Pounds of Allowable Forage by Season
(High Range)

Map Unit	Acres	Spring Grass	Summer Grass	Fall/Winter Grass	Sp-Su-FW Forbs	Sp-Su-FW Shrubs
ZEF-G	338.9	21,124	25,333	30,204	16,681	25,553
ZGF-F	598.5	45,151	48,661	54,580	22,507	66,694
ZGF-G	155.2	12,351	15,224	18,401	10,512	13,208
ZGF-E	184.0	33,158	43,251	53,556	7,385	7,258
	1,276.6	111,783	132,469	156,742	57,085	111,713

The palatable vegetation is used by livestock and wildlife; however, livestock are not allocated vegetation in unsuitable areas, but wildlife are. Therefore, to avoid over-allocation of vegetation to wildlife, their vegetal requirements (by class) were determined only on the suitable livestock range before the allocation process. Hence all wildlife forage requirements used were competitive with livestock.

Allocation Example

The maximum number of animals that can be grazed on this area is determined by dividing the pounds of forage produced by class of plant by the pounds of forage required per animal month for each season. The plant class that produces the least number of animal unit months (AUMs) is then the factor limiting the number of animals that can be grazed on the allotment. (An animal unit month, or AUM, is the amount of forage needed to sustain a cow for 1 month.) The Rock Creek allotment is grazed by cattle, bighorn, and antelope.

The following calculations are for spring use (3.5 months) only, and would also be calculated for the other two seasons of use.

Cattle

Grass	111,783 pounds	/ 720 pounds per cattle AUM =	155	cattle AUMs
Forbs	57,085 pounds	/ 24 pounds per cattle AUM =	2,379	cattle AUMs
Shrubs	111,813 pounds	/ 56 pounds per cattle AUM =	1,995	cattle AUMs

A maximum of 48 cattle can graze in the spring period (155 AUMs / 3.5 months = 48 animals). The limiting factor for cattle in this case is grass.

Bighorn
Grass 111,783 pounds / 304 pounds per bighorn = 1,075 bighorn AUMs
Forbs 57,085 pounds / 3 pounds per bighorn = 19,028 bighorn AUMs
Shrubs 111,713 pounds / 11 pounds per bighorn = 10,156 bighorn AUMs

A maximum of 307 bighorns can graze for the 3.5 months of spring. The limiting factor for bighorn in this case is also grass.

Antelope
Grass 111,783 pounds / 13 pounds per antelope = 8,599 antelope AUMs
Forbs 56,085 pounds / 14 pounds per antelope = 4,077 antelope AUMs
Shrubs 111,713 pounds / 27 pounds per antelope = 4,138 antelope AUMs

A maximum of 1,165 antelope can graze the spring period. The limiting factor is forbs in this case.

This method only maximizes AUMs within a single season and for a single kind of animal. The AUM figures for each species are not accumulative but are only for that single season of use and kind of animal.

However, because more than one season is usually involved, a weighted dietary factor is used in determining the biological limit. The Rock Creek allotment is grazed by cattle from June 1 to October 15 (20 weeks). Bighorns and antelope also use the area (for 4.5 months winter and 2.5 months spring; and 3.5 summer and 2 months fall) respectively. The weighted dietary requirement is determined by multiplying the forage consumed per animal in a month by vegetal class (see Table B-4) times the number of weeks in each season, divided by total weeks of the grazing period. This would be done for each of the grazing animals as follows:

Cattle (Spring = 2 weeks, summer = 11 weeks, fall-winter = 7 weeks)
Grass (720 x 2)+(720 x 11)+(688 x 7) / 20 = 709
Forbs (24 x 2)+(24 x 11)+(10 x 7) / 20 = 16
Shrubs (56 x 2)+(56 x 11)+(112 x 7) / 20 = 75
800 pounds per month

Antelope (Spring = 10 weeks, summer = 11 weeks, fall-winter = 11 weeks)
Grass (13 x 10)+(0 x 11)+(3 x 11) / 32 = 7
Forbs (14 x 10)+(11 x 11)+(3 x 11) / 32 = 9
Shrubs (27 x 10)+(38 x 11)+(48 x 11) / 32 = 38

Bighorn (Spring = 10 weeks, summer = 0 weeks, fall-winter = 18 weeks)
Grass (10 x 10)+(83 x 0)+(87 x 18) / 28 = 93
Forbs (3 x 10)+(23 x 0)+(10 x 18) / 28 = 8
Shrubs (11 x 10)+(12 x 0)+(21 x 18) / 28 = 17
118 pounds per month

The weighted biological limit is determined as follows:

Grass (111,783 x 2)+(132,4679 x 11)+(156,742 x 7) / 20 = 138,896 pounds

Since the biological limit for forbs (57,085 pounds) and shrubs (111,713 pounds) is the same for all seasons, weighting is not necessary.

A multiple use recommendation in MFP-2 might be to allocate forage for 21 bighorn sheep, 38 antelope and the balance for cattle from the suitable portion of the allotment.

The 21 bighorn sheep would require the following pounds of forage for the time they are on the allotment (7 months):

Grass 21 bighorn x 93 pounds per bighorn x 7 months = 13,671 pounds
Forbs 21 bighorn x 8 pounds per bighorn x 7 months = 1,176 pounds
Shrubs 21 bighorn x 17 pounds per bighorn x 7 months = 2,499 pounds

The 38 antelope would require the following pounds of forage for the time they are on the allotment (8 months):

Grass 38 antelope x 7 pounds per antelope x 8 months = 2,128 pounds
Forbs 38 antelope x 9 pounds per antelope x 8 months = 2,736 pounds
Shrubs 38 antelope x 38 pounds per antelope x 8 months = 11,552 pounds

The total pounds required by bighorns and antelope are as follows:

Bighorns	13,671	1,176	2,499
Antelope	2,128	2,736	11,552
	15,799	3,912	14,051

Once the wildlife forage requirements are figured, they are subtracted from the total available vegetation:

Grass	Forbs	Shrubs
138,896	57,085	111,713
-15,799	-3,912	-14,051
123,097	53,173	97,662

The balance is available for cattle and their dietary requirements are used to figure AUMs.

Grass 123,097 pounds / 709 pounds per cattle AUM = 174 cattle AUMs
Forbs 53,173 pounds / 16 pounds per cattle AUM = 3,323 cattle AUMs
Shrubs 97,662 pounds / 75 pounds per cattle AUM = 1,302 cattle AUMs

Because grass provides the smallest number of AUMs for cattle, it is the limiting factor, and 38.6 head of cattle can be grazed in the allotment from April 21 to September 15 (174 AUMs / 4.5 months = 38.6 cattle).

To determine how many cattle AUMs wildlife would need within the allotment, take the total wildlife grass pounds and divide it by the 709 grass pounds of the cattle dietary requirements, because grass is the limiting factor for cattle in this allotment. This would result in a 22 cattle AUM requirement for wildlife, or a loss of four cattle during the livestock grazing season. An equation of this would read as follows:

15,799 grass pounds for wildlife / 709 grass pounds per cattle = 22 wildlife competitive cattle AUMs.

APPENDIX C

Suitability

Rangeland suitability classification categories can be generally described as follows:

Suitable ranges are areas which can be grazed by livestock without damage to the soil and vegetation resources. Factors such as class of livestock, season-of-use, regional location, etc. may have a definite effect upon the classification of ranges and may require individual suitability keys with criteria values specifically designed for the particular situation.

Potentially suitable ranges are areas not currently suitable for livestock grazing due to lack of water. These areas may be suitable by development of waters.

Unsuitable ranges are areas which are neither currently nor potentially suitable for livestock grazing because of steepness of slope or other physical barriers.

The following table shows how suitability was identified in the EIS area:

Slope Percent	Distance Upslope From Water	Suitable	Potentially Suitable	Unsuitable
0-20%	Up to 2 miles	X		
	Over 2 miles		X	
21-30%	Up to 0.6 mile	X		
	Over 0.6 mile		X	
31-40%	Up to 0.4 mile	X		
	Over 0.4 mile		X	
41-50%	Up to 0.3 mile	X		
	Over 0.3 mile		X	
Over 50%				X

APPENDIX D

Cultural Resources

A combination of techniques were employed to identify the number, type, distribution and condition of cultural resources in the EIS area. These include a literature search, consultation with individuals knowledgeable of the cultural resources in the area, an examination of Salmon District, Idaho State University (ISU), and State Historic Preservation Office (SHPO) files to determine the location and type of site previously recorded; and Class III (intensive) inventories conducted prior to project development. Neither Class I inventory (review of existing literature) nor a Class II inventory (sample inventory in which a predetermined portion of the study area is surveyed) for the Ellis-Pahsimeroi has been funded or completed.

Over the past 20 years the EIS area has received low intensity coverage through BLM Class III surveys, contract work with Idaho State University, and Research Antiquities Permits. Under contract with the BLM, ISU surveyed portions of BLM land within and outside of the resource area in 1958 and 1966. The bulk of the site information is based in ISU's 1958 and 1966 surveys. Research permits have been granted to two individuals for area specific work within the Pahsimeroi Valley.

James C. Chatter has conducted intensive archaeological surveys and limited test excavations in the Upper Pahsimeroi Valley.

Dr. Mark Druss of ISU has been working on the Doublesprings Site 10 CR 29 since 1978 including intensive archaeological surveys of the general area and test excavations on portions of the site.

ISU's Pahsimeroi Valley field school has also undertaken historical studies during the summers of 1979 and 1980 and an ethnological study on lifeways in 1980. Results of this work have not been published.

During the past seven years BLM has completed a Class III survey on 29 lands cases and resource projects in the Pahsimeroi Resource Area. The EIS area has received limited archaeological attention. Class III inventory coverage of the units is estimated at less than 3 percent. Early work is often poorly documented and most recent investigations are usually project specific.

Appendix E

Economics

Ranch Budgets

An interagency agreement between the Bureau of Land Management, U.S. Forest Service, and the Economics, Statistics and Cooperative Service (ESCS) was signed in November of 1979. This agreement provides for the ESCS to collect rancher economic data for the other two agencies to use in their planning, EIS work, and range management program documents. Basically, the agreement provides the ESCS with money to collect ranch budgets for the BLM and Forest Service.

The first step in implementing the agreement was to identify those areas to be studied by ESCS. This is done annually. The first step in collecting the budgets was to provide ESCS with some basic data about the ranching industry in the Ellis-Pahsimeroi planning area. This included data such as the names of the operators involved, herd sizes, class of livestock, season of use, county of residence, active grazing preference on BLM lands, use of other federal lands, and other deed sources. Preliminary budgets were then constructed. These budgets were developed from national survey data, data provided about the local ranching industry, data from other sources such as extension specialists, lending institutions, universities, or producer organizations. These preliminary budgets were then circulated for review to the BLM and a sampling of producers in the area. Input gathered was used to develop the final budgets. The final budgets were distributed to all producers in the planning area and the BLM. These final budgets are shown in Tables 1 thru 6.

Linear Programming

Linear programming is a computational method to determine the best plan or course of action when there are many alternatives for the plan, a specific or numerical objective exists, and the means for attaining it are limited. Linear programming maximizes or minimizes some objective function. The linear programming analysis for this EIS was done by ESCS. The basic input data came from the ranch budgets. The linear programming for this EIS maximized net rancher income with availability of AUMs from BLM lands the primary limiting factor.

Dynamic Regional Analysis Model

Direct impacts (such as changes to ranch income and changes in the construction industry) cause other impacts to occur. For instance, when ranchers have less income, they purchase fewer goods and services in town, thus lowering the merchant's income. This is called the secondary impact. In order to analyze these impacts, a computer model is used, which estimates these impacts. It is called the Dynamic Regional Analysis Model (DRYAM). The direct income impacts are entered and the model calculates direct

employment and secondary income and employment impacts. The model uses industry earnings in combination with a 20-sector industry expected transaction matrix compiled from the national input-output table in order to estimate net exports or imports by industry for the economy of a given area. Multipliers are computed; they refer to impacts on personal income, not business income. Multipliers are the ratio between the ultimate increase of income arising from an increment of investment and the initial new investment itself. For example, an initial income increase in the livestock industry creates additional (or secondary) increases in both the livestock and other sectors of the economy. A multiplier estimates what this addition would be. With initial income increased by $1,000 and a multiplier of 1.5, the total income increase would be $1,500, with $500 being the additional increase estimated by the multiplier. The detailed mathematical explanation of DYRAM may be found in the Annals of Regional Science, November 1975, pp. 44-50.

The multipliers calculated by DYRAM which are of interest in this analysis were:

Livestock	1.282
Construction	1.028

This compares with multipliers generated in an input-output study of Blaine County by the University of Idaho of:

Livestock	1.895
Construction	1.3662

Discounting

Since each alternative represents differing mixes of livestock use and construction activities, it was decided to determine the net present worth for each alternative. Present worth is the amount of money today which will become a given amount at a stated time in the future. For example, at 10 percent interest $100 will grow to $110 in one year; therefore, the present worth of $110 one year from now at 10 percent interest is $100. If the end product is a series of payments, the present worth is the amount that will result in the sum of series. The net present worth of each alternative then, is the sum of the present worths of the income streams associated with livestock, construction, etc. Discounting is the procedure whereby the present worth of future income is determined. The concept is the converse of growth in value due to accrued interest. The Proposed Action and the Alternatives have been discounted to reflect their present worth with an assumed interest rate of 7.375 percent (established by the Water Resources Council for use by federal agencies in FY 1981). Table 7 shows the discounting procedure for the income change in the Proposed Action.

Adjusting for Inflation

When comparing income earned in various years, the effect of inflation must be taken into account. In order to do this, one or both of the income figures must be inflated or deflated to a common year. In this EIS

comparisons were made by inflating the 1975 income figures to 1978 levels. This is done by using the consumer price index. This index measures the relative level of prices against some base year which is presently 1967. In 1978, the index stood at 195.4. In 1975, the index was 161.2. This means that prices rose roughly 21 percent (195.4 / 161.2 between 1975 and 1978. In order to make 1975 prices equivalent to 1978 prices they must be increased by 21 percent. Any difference between the two prices not accounted for by this process would be the actual growth (or decline) in the economy over that period of time. Table 8 shows how this was done.

Range Improvements and Maintenance

In order to determine the impact on the local economy of installing and maintaining range improvements, the amount expected to be spent in the local economy must be determined. First, the total cost of each type of range improvement had to be determined. Once this was done the total cost had to be broken down into labor and materials costs. Then it had to be determined how much of these various costs would be incurred locally. This was done by district personnel, with knowledge of range improvement construction and past purchasing patterns, making estimates of how these costs would be distributed. These resulted in a set of assumptions which are displayed in Table 9.

1 -- Enterprise costs and returns, beef cow herds of up to 299 head, Idaho Ellis EIS area, Spring-Fall Grazing

Item	Unit	Number	Average Weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	45	450	69.15	14,003
Heifer calves	Head	23	400	56.25	5,176
Yearling steers	Head	22	710	65.63	10,095
Yearling heifers	Head	11	695	55.17	4,218
Cull cows	Head	25	976	28.84	7,037
Total					40,529
Total/cow					245.63

	Total Value	Value/ Cow
Cash costs:		
BLM grazing fee	429	2.60
Forest grazing fee	1,236	7.49
Private range lease/rent	- -	- -
State lease	- -	- -
Hay (produce)	8,418	51.02
Hay (purchase)	1,588	9.62
Protein supplement	- -	- -
Irrigated pasture	3,658	22.17
Salt and mineral	898	5.44
Concentrate feeds	- -	- -
Veterinary and medicine	841	5.10
Hired trucking	239	1.45
Marketing	693	4.20
Oil and lubricants	2,128	12.90
Repairs	2,320	14.06
Land taxes	1,541	9.34
Other taxes	705	4.27
Insurance	1,008	6.11
Interest on operating capital	1,542	9.35
General farm overhead	2,081	12.61
Other cash costs	- -	- -
Hired labor	1,310	7.94
Total cash costs	30,635	185.67
Other costs:		
Family labor	5,910	35.82
Depreciation	7,840	47.52
Interest on investment		
Other than land	16,929	102.60
Interest on land	39,897	241.80
Total other costs	70,586	427.73
Total all costs	101,211	613.40
Return above cash costs	9,894	59.96
Return above cash costs and family labor	3,984	24.15
Return to total investment	-3,856	-23.37
Return to land	-20,785	-125.97

Reduction Assumptions: Herd size 165 cows; 25 cows per bull; replacement rate 20%; cow loss 5%; calving rate 90% calf loss, birth to weaning 10%; 66% of steers sold as calves; 67% of heifer sales sold as calves.

2 -- Enterprise costs and returns, beef cow herds of up to 299 head, Idaho Ellis EIS area, Spring-Summer-Fall Grazing

Item	Unit	Number	Average Weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	34	450	69.15	10,580
Heifer calves	Head	18	400	56.25	4,050
Yearling steers	Head	17	710	64.63	7,801
Yearling heifers	Head	10	695	55.17	3,834
Cull cows	Head	16	976	28.84	4,504
Total					30,769
Total/cow					274.72

	Total Value	Value/ Cow
Cash costs:		
BLM grazing fee	784	7.00
Forest grazing fee	512	4.57
Private range lease/rent	- -	- -
State lease	- -	- -
Hay (produce)	5,933	52.97
Hay (purchase)	1,064	9.50
Protein supplement	- -	- -
Irrigated pasture	1,252	11.18
Salt and mineral	609	5.44
Concentrate feeds	- -	- -
Veterinary and medicine	571	5.10
Hired trucking	162	1.45
Marketing	470	4.20
Oil and lubricants	1,445	12.90
Repairs	1,575	14.06
Land taxes	1,046	9.34
Other taxes	480	4.29
Insurance	684	6.11
Interest on operating capital	1,001	8.94
General farm overhead	1,412	12.61
Other cash costs	- -	- -
Hired labor	889	7.94
Total cash costs	19,889	177.58
Other costs:		
Family labor	4,012	35.82
Depreciation	5,324	47.52
Interest on investment		
Other than land	11,504	102.71
Interest on land	27,082	241.80
Total other costs	47,922	427.88
Total all costs	67,811	605.46
Return above cash costs	10,880	97.14
Return above cash costs and family labor	6,868	61.32
Return to total investment	1,544	13.79
Return to land	-9,960	-88.93

Reduction Assumptions: Herd size 112 cows; 25 cows per bull; replacement rate 20%; cow loss 5%; calving rate 90% calf loss, birth to weaning 10%; 66% of steers sold as calves; 64% of heifer sales sold as calves.

3 -- Enterprise costs and returns, beef cow herds, Idaho Ellis EIS area, Spring Grazing

Item	Unit	Number	Average Weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	26	450	69.15	8,091
Heifer calves	Head	15	400	56.25	3,375
Yearling steers	Head	13	710	65.63	5,965
Yearling heifers	Head	7	695	55.17	2,684
Cull cows	Head	13	976	28.84	3,659
Total					23,774
Total/cow					273.26

	Total Value	Value/ Cow
Cash costs:		
BLM grazing fee	211	2.44
Forest grazing fee	- -	- -
Private range lease/rent	- -	- -
State lease	- -	- -
Hay (produce)	5,085	58.45
Hay (purchase)	- -	- -
Protein supplement	- -	- -
Irrigated pasture	3,160	36.32
Salt and mineral	473	5.44
Concentrate feeds	- -	- -
Veterinary and medicine	444	5.10
Hired trucking	126	1.45
Marketing	365	4.20
Oil and lubricants	1,122	12.90
Repairs	1,223	14.06
Land taxes	604	6.94
Other taxes	116	1.33
Insurance	532	6.11
Interest on operating capital	808	9.29
General farm overhead	1,097	12.61
Other cash costs	- -	- -
Hired labor	1,310	7.94
Total cash costs	30,635	184.57
Other costs:		
Family labor	3,579	41.42
Depreciation	2,215	25.46
Interest on investment		
Other than land	7,066	81.22
Interest on land	20,228	232.51
Total other costs	33,088	380.32
Total all costs	49,146	564.90
Return above cash costs	7,716	88.69
Return above cash costs and family labor	4,137	47.55
Return to total investment	1,922	22.09
Return to land	-5,144	-59.13

Reduction Assumptions: Herd size 87 cows; 25 cows per bull; replacement rate 20%; cow loss 5%; calving rate 90% calf loss, birth to weaning 10%; 66% of steers sold as calves; 67% of heifer sales sold as calves.

4 -- Enterprise costs and returns, beef cow herds of 300 head or more, Idaho Ellis EIS area, Spring-Summer-Fall Grazing

Item	Unit	Number	Average Weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	137	450	69.15	42,631
Heifer calves	Head	70	400	56.25	15,750
Yearling steers	Head	66	725	64.63	30,925
Yearling heifers	Head	34	680	55.17	12,755
Cull cows	Head	43	900	28.84	11,161
Total					113,222
Total/cow					211.63

	Total Value	Value/ Cow
Cash costs:		
BLM grazing fee	3,311	6.19
Forest grazing fee	869	1.62
Private range lease/rent	13,722	25.65
State lease	- -	- -
Hay (produce)	21,357	47.52
Hay (purchase)	4,066	- -
Protein supplement	- -	- -
Irrigated pasture	4,260	7.96
Salt and mineral	2,910	5.44
Concentrate feeds	- -	- -
Veterinary and medicine	2,943	5.50
Hired trucking	1,305	2.44
Marketing	1,899	3.55
Oil and lubricants	5,189	9.70
Repairs	5,473	10.23
Land taxes	5,906	11.04
Other taxes	1,482	2.77
Insurance	4,858	9.08
Interest on operating capital	4,682	8.75
General farm overhead	5,682	10.62
Other cash costs	- -	- -
Hired labor	3,110	5.81
Total cash costs	93,024	173.88
Other costs:		
Family labor	15,082	28.19
Depreciation	26,287	49.13
Interest on investment		
Other than land	56,245	105.13
Interest on land	205,149	383.46
Total other costs	302,763	565.91
Total all costs	395,787	739.79
Return above cash costs	20,198	37.75
Return above cash costs and family labor	5,116	9.56
Return to total investment	-21,171	-39.57
Return to land	-77,416	-144.70

Reduction Assumptions: Average herd 353 cows; 25 cows per bull; replacement rate 20%; cow loss 12%; calving rate 86%; calf loss birth to weaning 10%; 66% of steers and heifers sold as calves.

5 -- Enterprise costs and returns, beef cow herds of 300 head or more, Idaho Ellis EIS area, Spring-Fall Grazing

Item	Unit	Number	Average Weight	Price Cwt	Total Value
Sales:					
Steer calves	Head	104	450	69.15	32,362
Heifer calves	Head	50	400	56.25	11,250
Yearling steers	Head	54	710	65.63	24,779
Yearling heifers	Head	26	695	55.17	9,969
Cull cows	Head	20	976	28.84	5,630
Total					83,990
Total/cow					206.36

	Total Value	Value/ Cow
Cash costs:		
BLM grazing fee	684	1.68
Forest grazing fee	1,510	3.71
Private range lease/rent	- -	- -
State lease	- -	- -
Hay (produce)	16,272	39.98
Hay (purchase)	3,062	7.52
Protein supplement	- -	- -
Irrigated pasture	9,308	22.87
Salt and mineral	2,214	5.44
Concentrate feeds	- -	- -
Veterinary and medicine	2,239	5.50
Hired trucking	993	2.44
Marketing	1,445	3.55
Oil and lubricants	3,948	9.70
Repairs	4,164	10,23
Land taxes	4,493	11.04
Other taxes	1,127	2.77
Insurance	3,696	9.08
Interest on operating capital	3,278	8.05
General farm overhead	4,322	10.62
Other cash costs	- -	- -
Hired labor	2,366	5.81
Total cash costs	65,121	160.00
Other costs:		
Family labor	10,659	26.19
Depreciation	10,045	24.68
Interest on investment		
Other than land	36,965	90.82
Interest on land	62,682	154.01
Total other costs	120,351	295.70
Total all costs	185,472	455.71
Return above cash costs	18,869	46.36
Return above cash costs and family labor	8,210	20.17
Return to total investment	1,835	4.51
Return to land	-38,800	-95.33

Reduction Assumptions: Average herd 407 cows; 25 cows per bull; replacement rate 20%; cow loss 15% calving rate 86%; calf loss, birth to weaning 10%; 66% of steers sold as calves; 66% of heifer sales sold as calves.

6 -- Enterprise costs and return, sheep enterprises, Idaho Ellis EIS area.

Item	Unit	Quantity	Average Weight	Price	Total Value
Sales:					
Slaughter lambs	Head	708	95	56.83	38,224
Feeder lambs	HEad	707	70	61.17	30,273
Ewes	HEad	107	165	9.68	1,709
Wool	Lbs	1,533	10.6	.78	12,675
Wool incentive payment	Dol.	12,677	- -	.48	6,085
Unshorn lamb payment	Cwt.	1.486	- -	1.43	2,125
Total					91,091
Total/ewe					76.16

	Total Value	Value Head
Cash costs:		
BLM permit	1,302	1.09
Forest permit	203	.17
Irrigated pasture	5,906	4.94
Pasture lease/rent	2,749	2.30
Hay (purchase)	1,326	1.11
Hay (produce	7,288	6.09
Grain (purchase)	- -	- -
Protein supplement	- -	- -
Other feed	- -	- -
Salt & minerals	215	.18
Spray & dipping	144	.12
Vet & medicine	144	.12
Marketing	251	.21
Trucking	1,459	1.22
Shearing & tagging	1,997	1.67
Utilities	203	.17
Lamb promotion	132	.11
Organization	108	.09
Legal & Acct.	454	.38
Wool storage	72	.06
Predator control	1,208	1.01
Ram death loss	466	.39
Machine fuel & lube	861	.72
Machine repair	742	.62
Equipment repair	789	.66
Labor	12,355	10.33
Land tax	2,069	1.73
Other tax	144	.12
Insurance	658	.55
General farm overhead	1,064	.89
Interest on oper. capital	2,341	1.96
Total	46,650	39.01
Other costs:		
Family labor	5,286	4.42
Depreciation	5,846	4.89
Interest on investment other than land	13,732	11.48
Interest on land investment	26,587	22.23
Total	51,451	43.02
Return above cash costs	44,441	37.16
Return above cash costs & family labor	39,155	32.74
Return to total investment	33,309	27.85
Return to land investment	19,577	16.37

Production Assumptions: Average herd 1,196 ewes; 130% docking rate; 9% lamb loss docking to market; 20% replacement rate; 50% of lambs sold as feeders; 11% ewe loss 10.6 lb. fleece weight; 30 ewes per lamb.

Table 7

Discounting Procedure

Alternative 1

Year	Cash Flow	Discounting Factor (1)	Discounted Flow
1	$ 5,629	.9313	$ 5,242
2	10,686	.8674	9,269
3	15,742	.8078	12,716
4	20,799	.7523	15,647
5	25,856	.7006	18,115
6	30,913	.6525	20,171
7	35,969	.6077	21,858
8	41,026	.5659	23,217
9	46,083	.5271	24,290
10	51,140	.4909	25,105
11	56,196	.4572	25,693
12	61,253	.4258	26,082
13	66,310	.3965	26,292
14	71,367	.3693	26,356
15	76,423	.3439	26,282
16	81,480	.3203	26,098
17	86,537	.2983	25,814
18	91,594	.2778	25,445
19	96,650	.2587	25,003
20	101,714	.2410	24,513
Total	1,073,367		433,208

(1) at 7 3/8 percent discount rate

Table 8

Adjusting for Inflation
Ellis-Pahsimeroi EIS
(in Thousands of Dollars)

Category	Actual 1975 Income	CPI Adj. Factor (1)	Adj. 1975 Income (3)	Actual 1978 Income	Real % Change
Total	$25,528	1.2122	$30,945	$42,026	+35%
Farm	3,679	1.2122	4,460	9,700	+117%
Nonfarm	21,849	1.2122	26,485	32,326	+22%

(1) From the Consumer Price Index, Table B-50, Presidents Council of Economic Advisors, Economic Report of the President, January 1981.

(2) Adjusted to 1978 equivalents

Table 9

Range Improvements and Maintenance
Assumption

1. 30 percent of Range Improvement labor purchased locally (Custer and Lemhi Counties);

2. 10 percent of Range Improvement Materials purchased locally;

3. 60 percent of maintenance funds spent locally;

4. Labor represents the following percentages of the total cost for range improvement construction:

a.	Pipelines	30%
b.	Troughs	50%
c.	Reservoirs	95%
d.	Fences	50%
e.	Vegetative Manipulation	25%
f.	Vegetative Manipulation and Seeding	25%
g.	Maintenance on Existing Land Treatments	25%

5. Per Unit Construction Costs are:

a.	Pipelines	$2,600 per mile
b.	Troughs	500 each
c.	Reserviors	1,200 each
d.	Fences	2,200 per mile
e.	Vegetative Manipulation	12 acre
f.	Vegetative Manipulation and Seeding	18 acre
g.	Maintenance on Existing Land Treatments	5 acre

6. Annual Maintenance Costs are:

a.	Pipelines	$250 per mile
b.	Troughs	25 each
c.	Reserviors	90 each
d.	Fences	60 mile
e.	Vegetative Manipulation	.060 acre
f.	Vegetative Manipulation and Seeding	.075 acre

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LIST OF PREPARERS

In compliance with the Council on Environmental Quality Rules and Regulation (1502.17) this list states the responsibility of persons involved in the Ellis-Pahsimeroi EIS and summaries of their experience and qualifications. The EIS was written by a three person core team with assistance from an interdisciplinary team. The core team was primarily responsible for perparing this document with technical guidance and interdisciplinary input from the special assistance team.

Loren Anderson prepared the Terrestrial Wildlife material which was incorporated into the EIS. Loren is the District Wildlife Biologist at the Salmon District Office. He has been a wildlife biologist for 10 years and was a range conservationist for 3 years. Loren has a B.S. in Wildlife Biology from Colorado State University. He worked on the Challis and Challis Supplemental Grazing EISs and two additional EISs.

James Behm handled the Soils section of the EIS. Jim is the Salmon District Soil Scientist. He has been with the BLM for three years. Jim has a B.S. in Soils from the University of Minnesota.

Paul Card wrote the section on Social Condition. After two years in the Executive Office of the Governor (Idaho), he joined the BLM in 1979 as a Sociologist. Earlier, during five years with the Idaho Transportation Department, Paul supervised the production of EISs. He is a graduate from Eastern Washington State College, where he received a B.A. in Sociology and Math. He attended graduate school at the University of Idaho.

Rex Christensen the Pahsimeroi Area Manager, was responsible for the MFP multiple-use recommendations from which the Proposed Action and Alternatives evolved. Rex has been with the BLM for 24 years, 15 years of which he has been an area manager. His first nine years with the BLM was as a range conservationist. Rex graduated from Brigham Young Universtiy with a B.S. in Botany.

Rick Colvin is the Salmon District Outdoor Recreation Planner who was responsible for preparing the Recreation and Visual Resource sections of the EIS. Prior to coming to the BLM in October 1980, Rick worked for three years as a graduate research assistant at Oregon State University. Rick has a B.S. in Resource Recreation Management and M.A. in Interdisciplinary Studies from Oregon State University.

Stan Frazier authored the Economics section of the EIS. Stan is Agricultural Economist with the BLM, Idaho State Office in Boise. In his six years with the BLM, Stan has worked on 11 EISs which have been finalized. He graduated from Oregon State University with a B.S. in Agricultural Economics.

Chuck Keller prepared the Aquatic Wildlife portion of the EIS. Chuck is the Fisheries Biologist at the Salmon District Office. Prior to coming to the BLM six years ago, Chuck worked for five years with the Indiana Fish and Game. Chuck had input to the Challis Supplemental EIS. He graduated with a B.S. in Fisheries from Humbolt State University.

Sue Kozacek is a Range Conservationist with the Pahsimeroi Resource Area. Sue was responsible for the Wild Burros sections. She was also on the core team responsible for putting the EIS together. Sue has been with the BLM for three years after working for one year as a wildlife biologist with the Forest Service. She also worked on the Challis Supplemental EIS. She has a B.S. in Biology from Fort Lewis College, a M.S. in Wildlife Biology from Colorado State University and has done post-graduate work in Range Management at Utah State University.

Paul Krupin is the Salmon District Hydrologist who was responsible for the Water Resources sections of the EIS. After six months with the Forest Service as Hydrologist, Paul came to the BLM three years ago. He has a B.A. in Environmental Biology from the University of Colorado and a M.S. in Physical Geography, Hydrology, Water Quality from Oregon State University.

Dave McGowan is a Range Conservationist in the Pahsimeroi Resource Area. He was responsible for the Vegetation and Livestock sections. Dave was also on the core team responsible for putting the EIS together. Dave came to the BLM four years ago after six months as a range tech. with the Pacific Northwest Forest and Range Experiment Station in LaGrande, Oregon. He has a B.S. in Rangeland Resources from Oregon State University.

John Rice served as the State Office Coordinator for the Ellis-Pahsimeroi EIS. John has been with the BLM for 19 years of which the last 6 have been in the Idaho State Office as an Environmental Specialist. Before taking his current position has was a Forester in Coeur d'Alene. John also worked as a Forester for two years with the Forest Service. He has had input to six other EISs. John has a B.S. in Forest Mangement from the University of Minnesota.

Nancy Vaughan is the Salmon District Archaeologist who was responsible for the preparation of the Cultural Resources sections of this EIS. Nancy has been with the BLM for five years. She has a B.A. in Anthropology and Archaeology from the University of South Florida.

Dave Wolf prepared the information on Wilderness for this EIS. He is an Outdoor Recreation Planner in the Salmon District Office. Dave has been with the BLM for four years. He has a B.S. in Wildlife Management and a B.S. in Outdoor Recreation both from Colorado State University.

Jerry Wilfong was the team leader for this EIS. Jerry, the Salmon District Planning/Environmental Coordinator, has been with the BLM for nine years. He directed the preparation of this EIS and prepared several sections. Jerry has had past experience on one other grazing EIS and two other resource EISs. He received a B.S. in Forestry from University of Idaho. Jerry has had past experience with the BLM in Idaho and Wyoming.

GLOSSARY

Active Grazing Preference - Total grazing preference minus suspended use.

Adjudication - The process of determining allotment boundaries and total preference which took place in this particular EIS area in the late 1960's. During this process the range user's qualifications were reviewed to determine who would get how many AUMs and where allotment lines would be drawn. Qualifications were based on the amount of base property owned by each range user.

Animal Unit Month (AUM) - The amount of forage required to sustain the equivalent of 1 cow, 5 sheep, 4 deer, or 5.3 antelope for one month. An AUM is equal to 800 pounds of forage.

Biological Limits - The extent to which a particular species of plant can be grazed at a particular time of year without damaging its growth and leaving enough for watershed soil protection.

Browse - Woody forage available for use or used as food by browsing animals.

Carry Capacity - The maximum stocking rate possible without damaging vegetation or related resources.

Condition - This can refer to either ecological condition or range condition. Range ecological condition is the present state of the vegetation on a range site in relation to the climax (natural potential) plant community for that site. Range forage condition is a rating of quality or quantity of forage present.

Deferred Grazing System - The withholding of livestock grazing from an area until a certain stage of plant growth is reached.

Duripan - (also know as caliche layer) An indurated horizon cemented by materials such as aluminum silicate, silica, calcium carbonate, and iron.

Forage - Any plants used or available for use as food by grazing animals.

Grazing System - Method used to vary the livestock use an allotment receives. This document uses two systems: deferred and rest-rotation.

Management Framework Plan (MFP) - A BLM document which follows the URA and is used in the planning process. From the range portion of this document the area manager formulated the Proposed Action for the EIS.

Public Lands - Lands administered by the BLM.

Rest-Rotation Grazing System - The rotation of livestock use from one pasture of an allotment to another on a seasonal and/or yearly basis. By so doing one or more of the pastures receives use during the year.

Riparian - Vegetation pertaining to or situated on the banks of a river or other body of water.

Seasonal Grazing - Livestock use that occurs repeatedly in the same area during the same season of the year.

Section 3 - Refers to grazing administration on public lands under Section 3 of the Taylor Grazing Act which were originally within grazing districts.

Suitability - The capability of forage-producing land to be grazed on a sustained yield basis without damage to the basic resources of the area or to adjacent areas.

Suspended Use - Grazing privileges which cannot be activated until adequate forage is available.

Total Grazing Preference - Grazing privileges determined during adjudication.

Trend - The direction of change in range condition, described in this document as upward, static, or downward.

Unit Resource Analysis (URA) - A BLM document that precedes the MFP and is part of the planning process. In the URA, a comprehensive description and present situation status of each resource is given.

Vegetation Manipulation - Altering the character of vegetation by burning, chaining, chemical application, or other means.

Wolf Plants - A plant which is repeatedly left ungrazed year after year, resulting in and from less paltable stems and leaves than regrowth from grazed plants.

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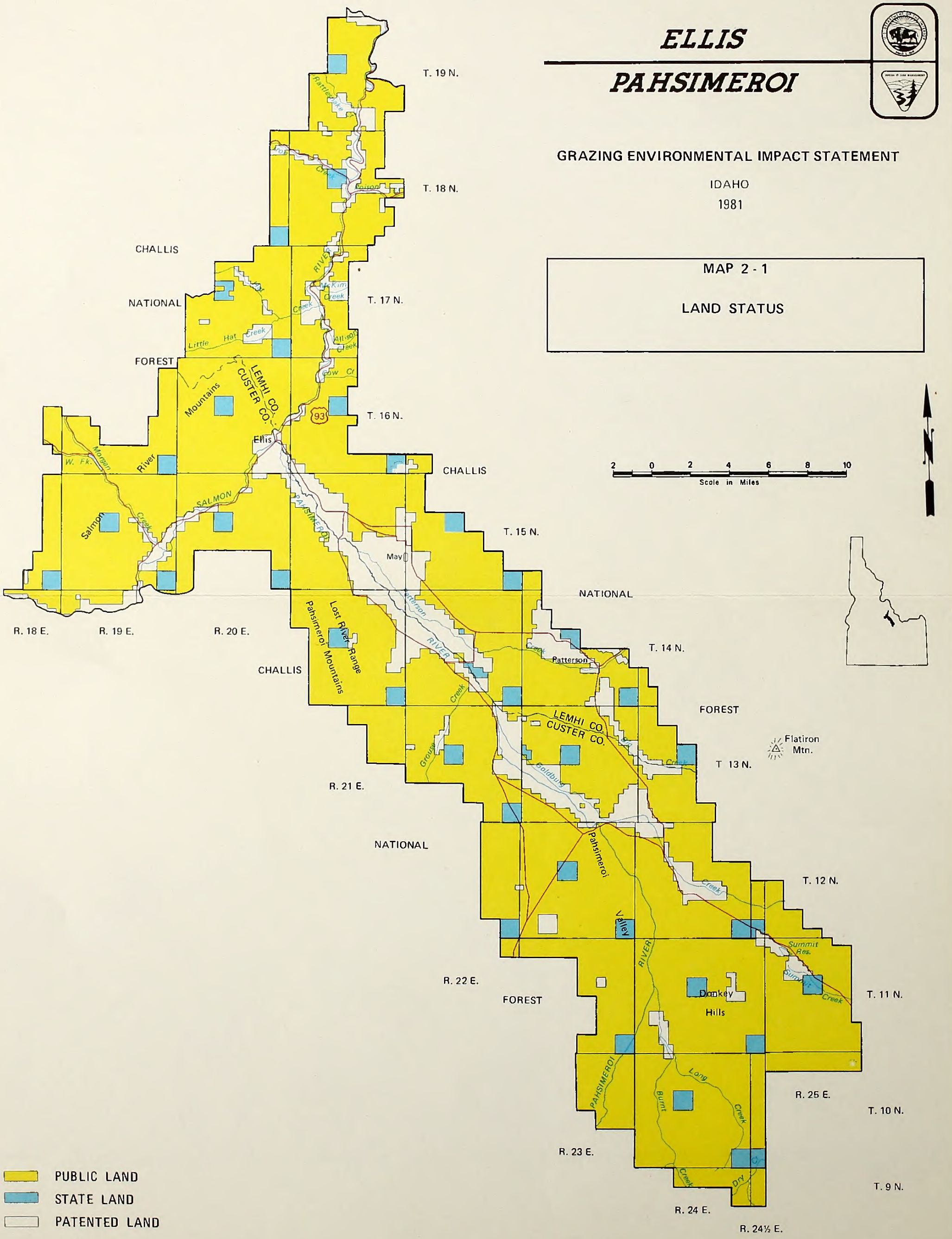
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

1981

MAP 2 - 1

LAND STATUS



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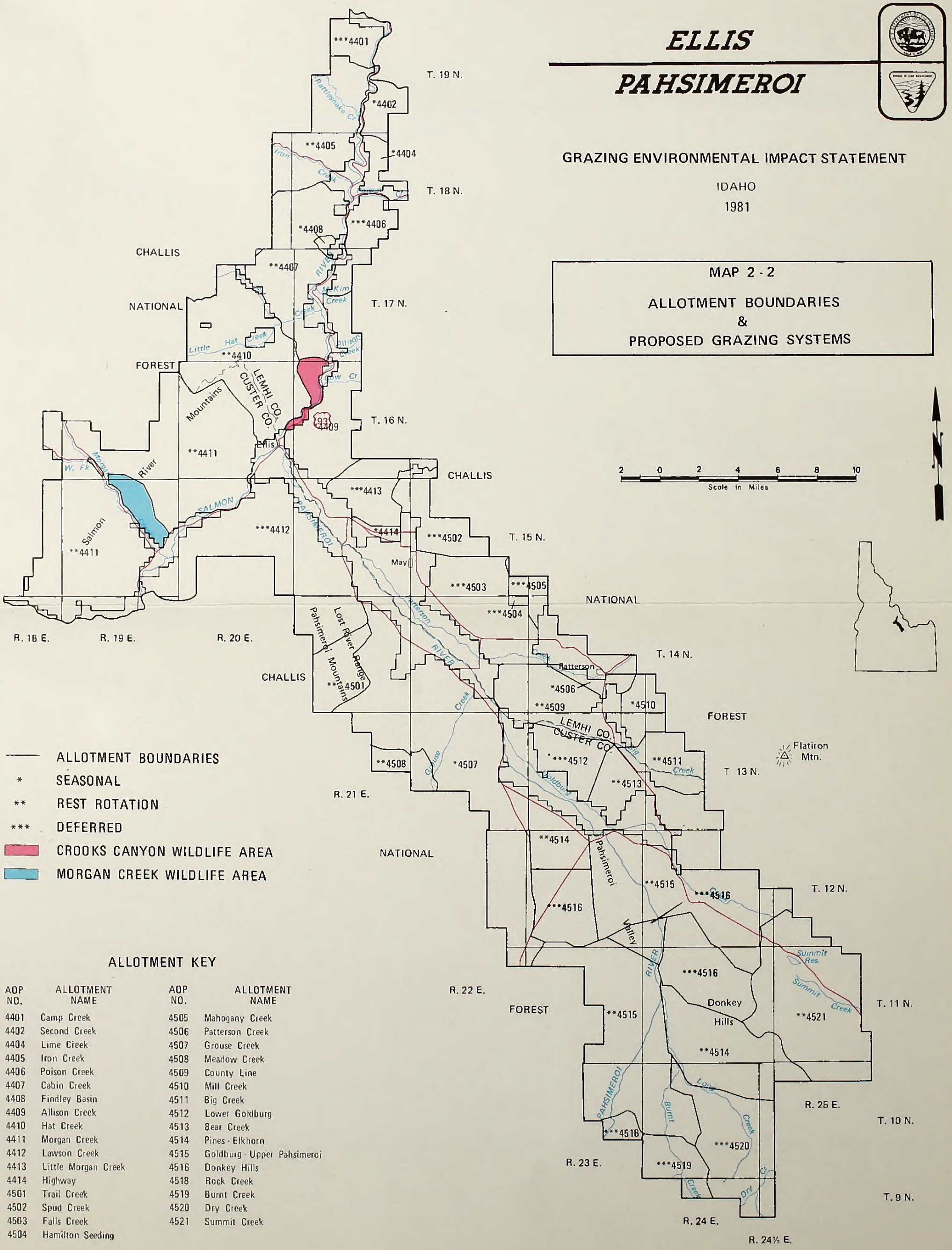
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

1981

MAP 2 - 2

ALLOTMENT BOUNDARIES
&
PROPOSED GRAZING SYSTEMS



— ALLOTMENT BOUNDARIES
* SEASONAL
** REST ROTATION
*** DEFERRED
CROOKS CANYON WILDLIFE AREA
MORGAN CREEK WILDLIFE AREA

ALLOTMENT KEY

AOP NO.	ALLOTMENT NAME	AOP NO.	ALLOTMENT NAME
4401	Camp Creek	4505	Mahogany Creek
4402	Second Creek	4506	Patterson Creek
4404	Lime Creek	4507	Grouse Creek
4405	Iron Creek	4508	Meadow Creek
4406	Poison Creek	4509	County Line
4407	Cabin Creek	4510	Mill Creek
4408	Findley Basin	4511	Big Creek
4409	Allison Creek	4512	Lower Goldburg
4410	Hat Creek	4513	Bear Creek
4411	Morgan Creek	4514	Pines - Elkhorn
4412	Lawson Creek	4515	Goldburg - Upper Pahsimeroi
4413	Little Morgan Creek	4516	Donkey Hills
4414	Highway	4518	Rock Creek
4501	Trail Creek	4519	Burnt Creek
4502	Spud Creek	4520	Dry Creek
4503	Falls Creek	4521	Summit Creek
4504	Hamilton Seeding		

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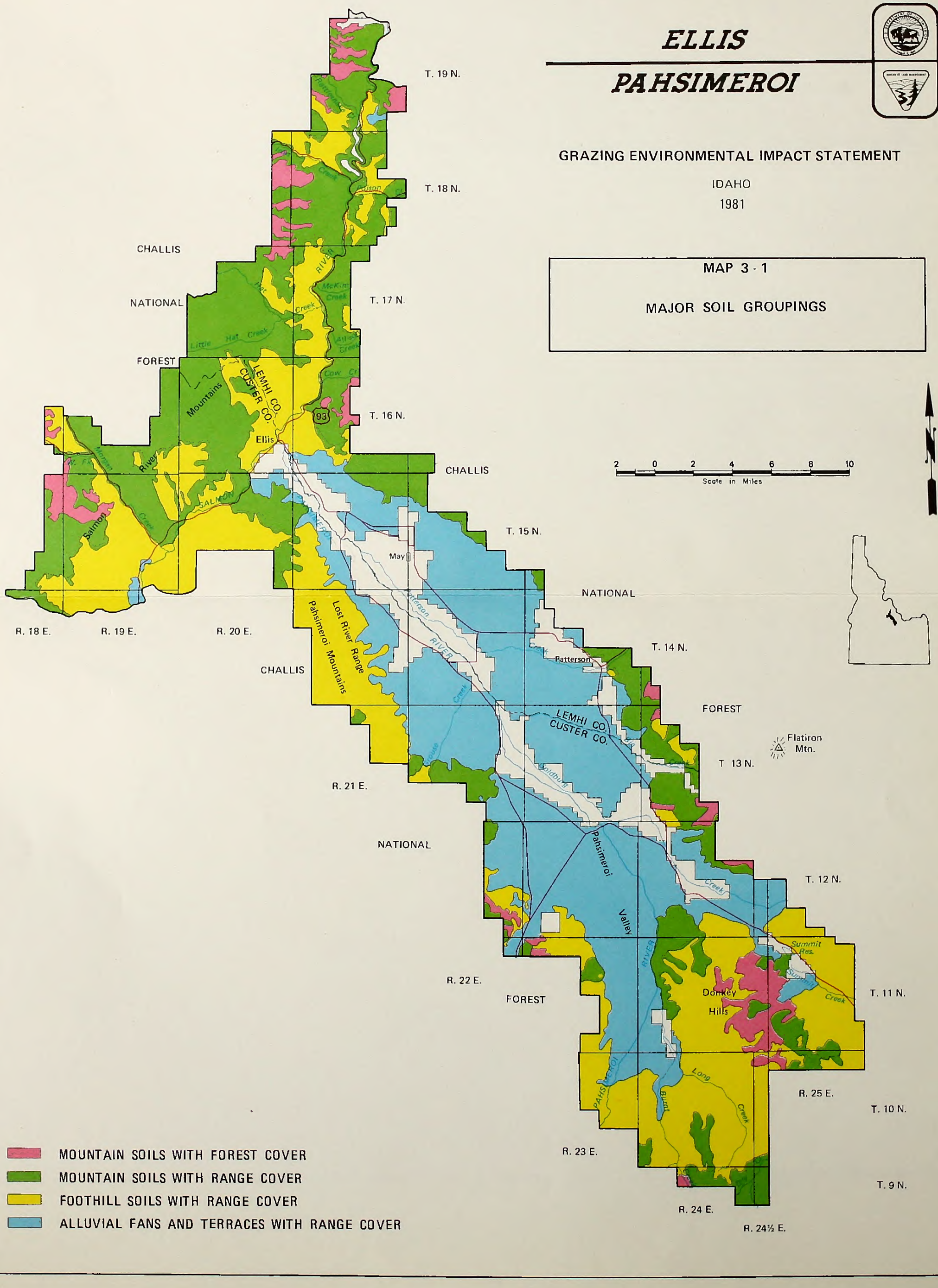
MAP 3 - 1

MAJOR SOIL GROUPINGS



- MOUNTAIN SOILS WITH FOREST COVER
- MOUNTAIN SOILS WITH RANGE COVER
- FOOTHILL SOILS WITH RANGE COVER
- ALLUVIAL FANS AND TERRACES WITH RANGE COVER

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GRAZING ENVIRONMENTAL IMPACT STATEMENT

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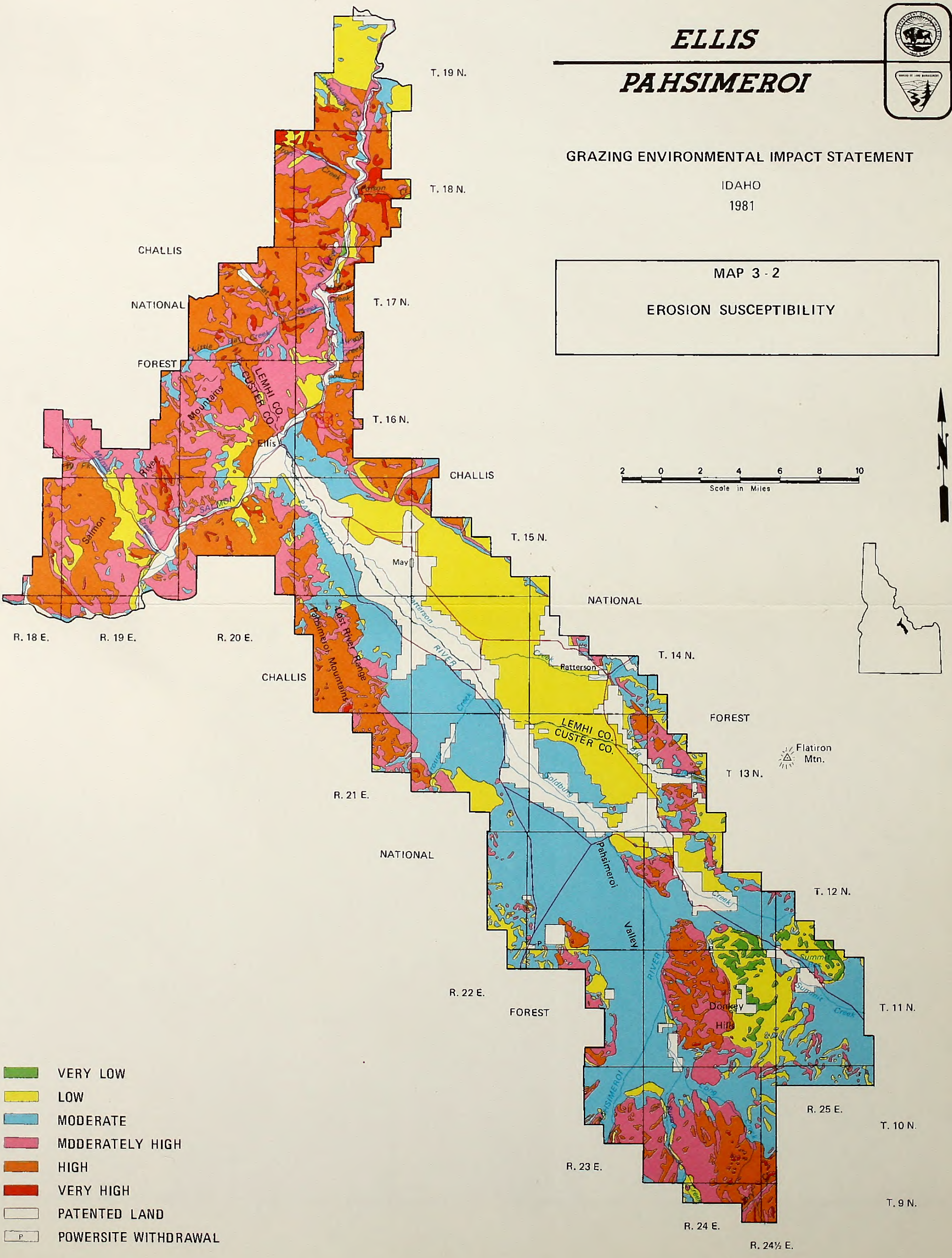
MAP 3 - 2

EROSION SUSCEPTIBILITY



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GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

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MAP 3 - 3

MAJOR VEGETATION TYPES

T. 19 N.
T. 18 N.
T. 17 N.
T. 16 N.
T. 15 N.
T. 14 N.
T. 13 N.
T. 12 N.
T. 11 N.
T. 10 N.
T. 9 N.

R. 18 E.
R. 19 E.
R. 20 E.
R. 21 E.
R. 22 E.
R. 23 E.
R. 24 E.
R. 24½ E.

CHALLIS NATIONAL FOREST
LEMHI CO. CUSTER CO.

Rattlesnake Cr.
Twin Creek
Poison Cr.
RIVER
McKim Creek
Little Creek
Wallace Creek
Mountains
Ellis
Morgan Creek
N. F. Salmon River
SALMON
Salmon Creek
PAHSIMEROI
May
Patterson
Pahsimeroi Mountains
Lost River Range
Patterson Creek
RIVER
Custer
Goldburg
Flatiron Mtn.
Pahsimeroi Valley
Creek
Summit Rks.
Summit Creek
Donkey Hills
Long Butte Creek

2 0 2 4 6 8 10
Scale in Miles

- BIG SAGEBRUSH / GRASS
- LOW SAGEBRUSH / GRASS
- SHADSCALE / GRASS
- 3 – TIP SAGEBRUSH / GRASS
- WOODLAND
- 60% ROCK and TALUS and 40% BIG SAGEBRUSH / GRASS
- SEEDINGS
- CHICKEN SAGE / GRASS
- GOLDBURG
- ROCK and TALUS
- PATENTED LAND
- P POWERSITE WITHDRAWAL

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GRAZING ENVIRONMENTAL IMPACT STATEMENT

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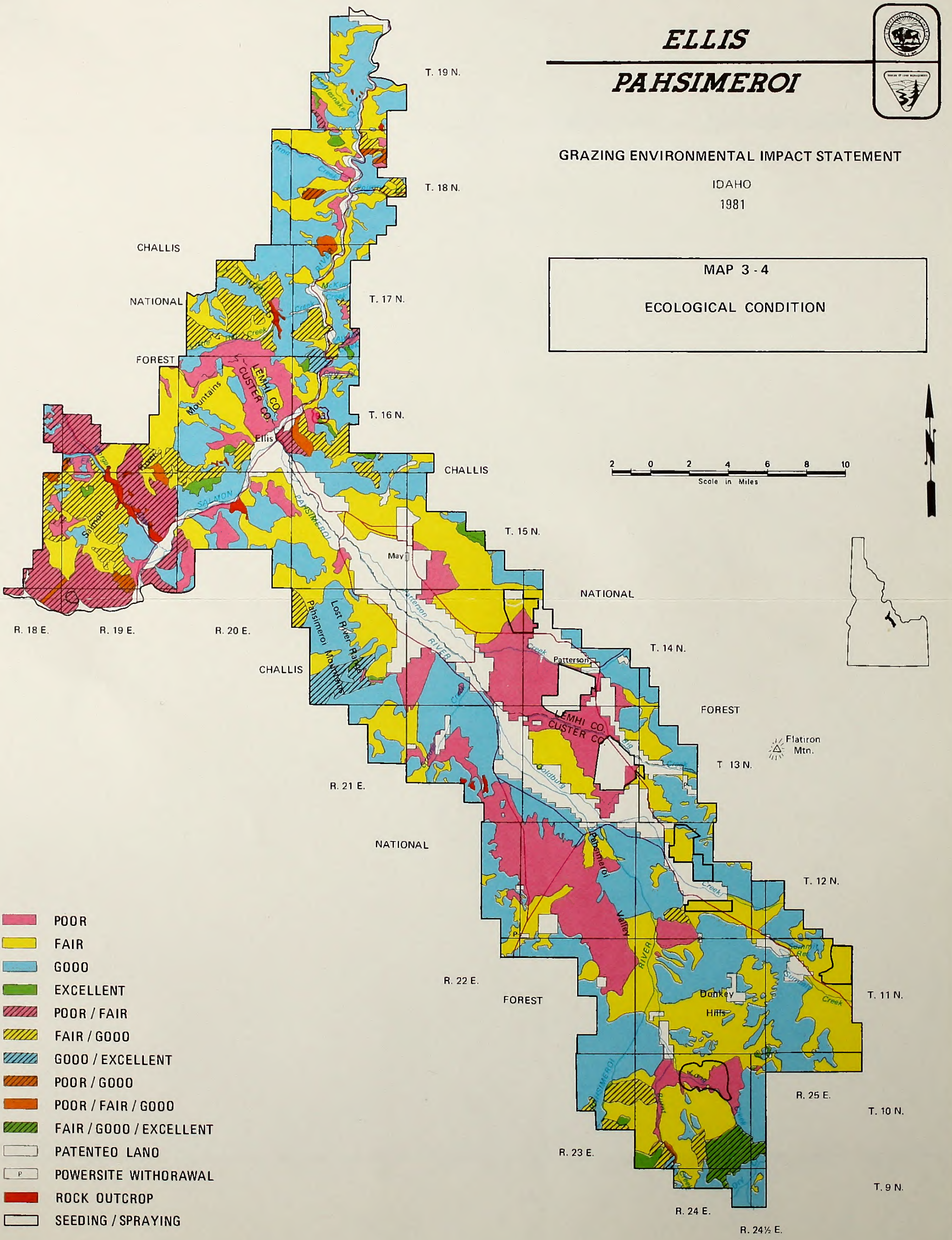
MAP 3 - 4

ECOLOGICAL CONDITION



- POOR
- FAIR
- GOOO
- EXCELLENT
- POOR / FAIR
- FAIR / GOOO
- GOOO / EXCELLENT
- POOR / GOOO
- POOR / FAIR / GOOO
- FAIR / GOOO / EXCELLENT
- PATENTEO LANO
- P POWERSITE WITHORAWAL
- ROCK OUTCROP
- SEEDING / SPRAYING

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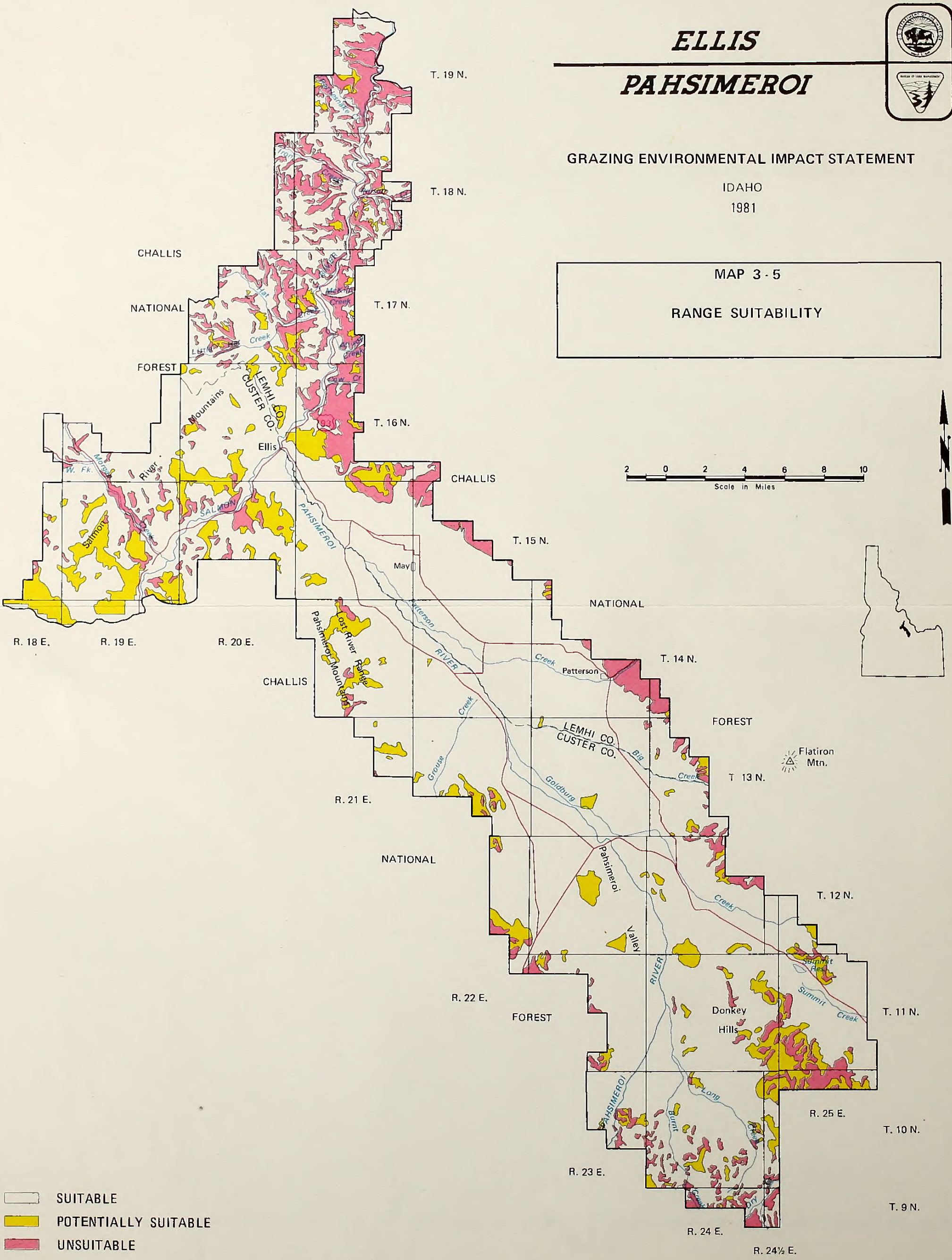
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

1981

MAP 3 - 5

RANGE SUITABILITY



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GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

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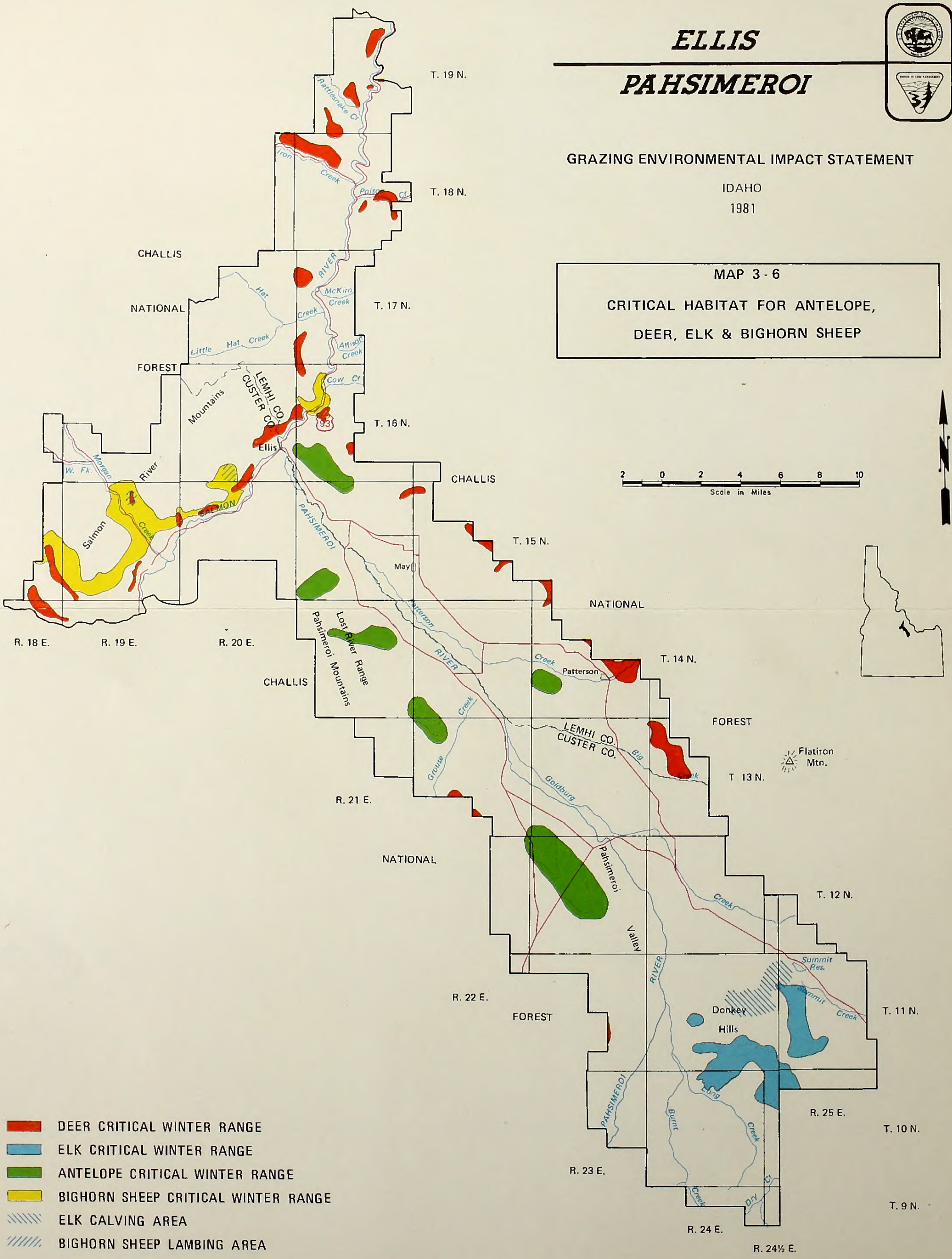
MAP 3 - 6

CRITICAL HABITAT FOR ANTELOPE,

DEER, ELK & BIGHORN SHEEP



DEER CRITICAL WINTER RANGE

ELK CRITICAL WINTER RANGE

ANTELOPE CRITICAL WINTER RANGE

BIGHORN SHEEP CRITICAL WINTER RANGE

ELK CALVING AREA

BIGHORN SHEEP LAMBING AREA

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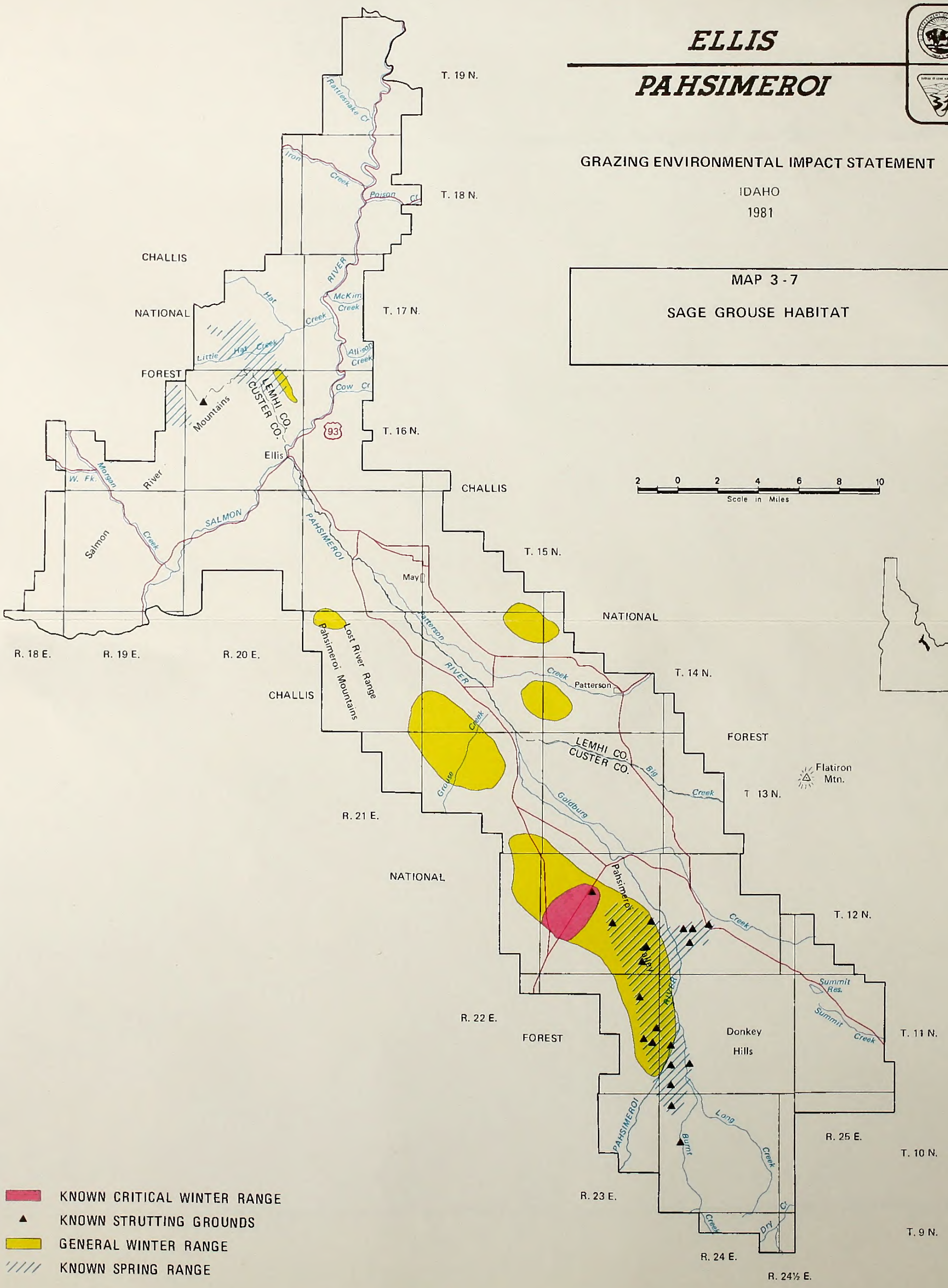
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

1981

MAP 3 - 7

SAGE GROUSE HABITAT



ELLIS

PAHSIMEROI

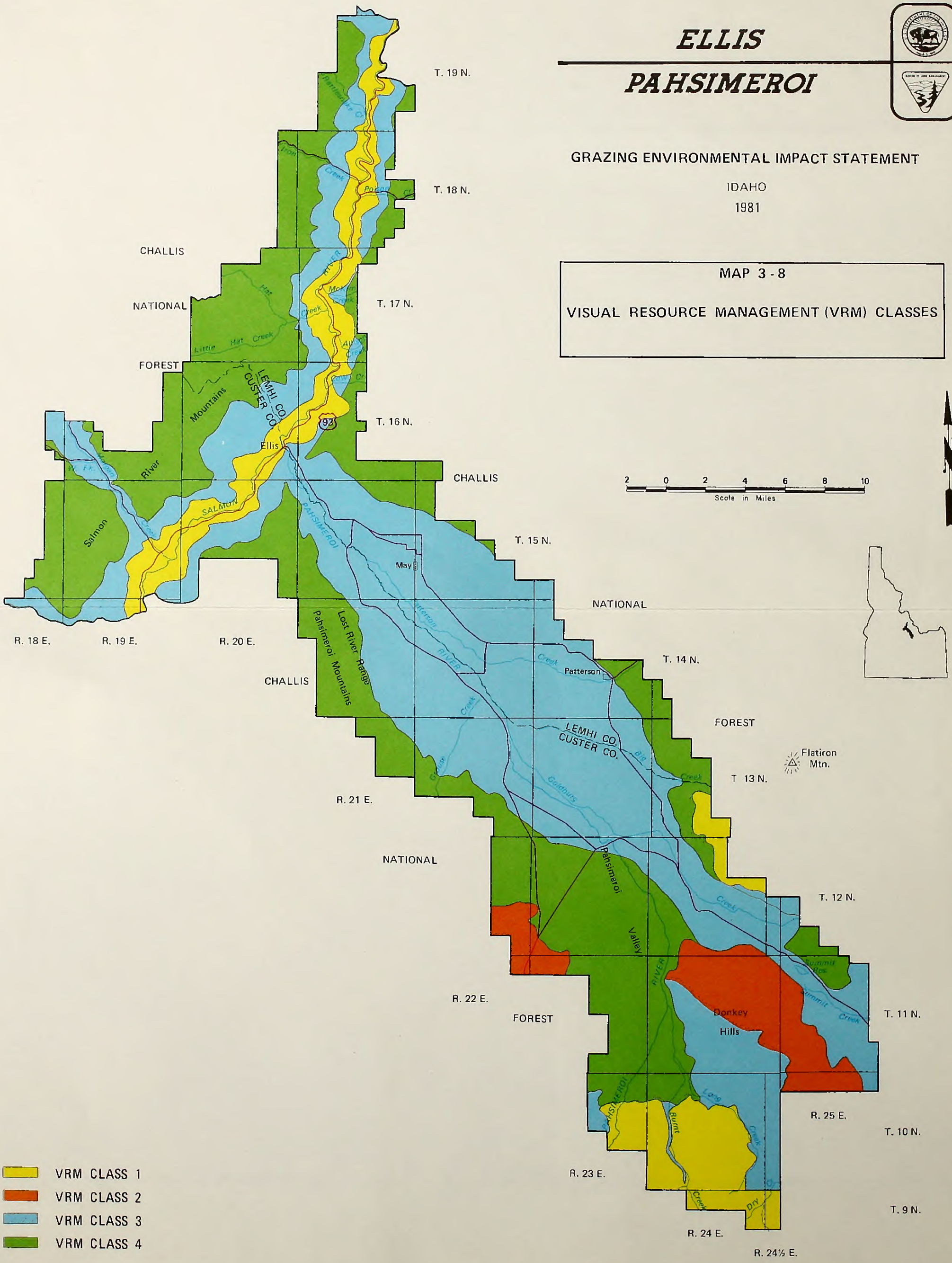
GRAZING ENVIRONMENTAL IMPACT STATEMENT

IDAHO

1981

MAP 3 - 8

VISUAL RESOURCE MANAGEMENT (VRM) CLASSES



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